# OPUS 2 INTERNATIONAL 

Grenfell Tower Inquiry

Day 44

September 29, 2020

## Opus 2 International - Official Court Reporters

Phone: +44 (0)20 30085900
Email: transcripts@opus2.com
Website: https://www.opus2.com
Tuesday, 29 September 2020
(10.00 am)
SIR MARTIN MOORE-BICK: Good morning, everyone. Welcome to
today's hearing. Today we're going to hear further
evidence from one of the fitters, Osborne Berry.
MS GRANGE: Yes. Can we have Mr Grahame Berry, please.
SIR MARTIN MOORE-BICK: Thank you.
MR GRAHAME BERRY (affirmed)
SIR MARTIN MOORE-BICK: Thank you very much, Mr Berry.
Would you like to sit down and make yourself comfortable
there, please.
Yes, Ms Grange.
Questions from COUNSEL TO THE INQUIRY
MS GRANGE: Yes, thank you.
Thank you very much, Mr Berry, for coming to give
evidence today. It's very much appreciated.
I will be asking you questions today. If you have
any difficulty understanding anything I'm asking you,
please ask me to repeat the question or put the point in
a different way.
Also, please try and keep your voice up, because the
lady sitting to your right is transcribing everything we
say and trying to get a clear note of your evidence.
Now, you have made two witness statements for

1
the Inquiry. These are in a folder on the desk in front of you, and they will also appear on the screen. If we can go to the first at \{OSB00000086\}, we can see there there's a date on it, 24 September 2018, and if we can look at the final page, page 7 \{OSB00000086/7\}, there we see the date again.

Is that your signature?
A. It is, yes.
Q. Have you read that statement recently?
A. Fairly recently, yeah.
Q. And are the contents true?
A. Yes.
Q. Then if we can bring up your second witness statement to the Inquiry, this is \{OSB00000091\}, and if we look at page 14 \{OSB00000091/14\} of that statement, there we can see it's dated 27 June 2019. Again, is that your signature?
A. Yes.
Q. Have you read that second statement recently?
A. Yeah.
Q. And can you confirm that the contents are true?
A. Yes.
Q. Then you also gave a statement to the

Metropolitan Police Service. It's \{MET00019985\}. It's dated 21 August 2017, and we can see that in the little
date box between the two lines. Have you read that statement recently?
A. Not recently, no, but at the time, yeah.
Q. Can you confirm that the contents are true?
A. Yes.
Q. Thank you.

Osborne Berry also provided a position statement to the Inquiry, which I think you rely on as part of your evidence.
A. Yeah.
Q. If we can bring that up, that's \{OSB000000084\}. That's the Osborne Berry position statement.

Did you assist in the preparation of that position statement?
A. Yes.
Q. Again, are the contents true to the best of your knowledge?
A. Yes.
Q. Have you discussed your evidence with anyone before coming here today?
A. No.
Q. No, okay.

So I first want to ask you some questions about your professional background and training.

You say at paragraph 3 of your first witness

## 3

statement $\{$ OSB00000086/5\} that prior to the
incorporation of Osborne Berry, you had worked as
a fitter carrying out work for Harley for about
20 years; is that right?
A. That's correct, yeah.
Q. Did your work as a fitter involve the installation of building envelopes?
A. Yes.
Q. Were you fitting anything else or was it really external façades that you were dealing with?
A. It was a variance of different things; sometimes it was windows, other times it was façades, it would just depend on the project as such.
Q. Would that work have included installing curtain walling, rainscreen cladding façades, windows, doors and structural glazing?
A. Yes.
Q. We know that Osborne Berry was incorporated in 2002, so is it right that, by the time that you were instructed by Harley in the Grenfell Tower project, you had had around 32 years of experience in the installation of building envelopes?
A. Yeah.
Q. Have you undertaken any formal training or qualifications in relation to the installation of
building envelopes?
A. I went to a training course in Liverpool through -- it's a company called Kawneer, and that was to do with curtain wall installations and window installations up there. That was a three-day course.
Q. When did you do that course in Liverpool?
A. I can't honestly remember the dates, but it was around 2000-and-something, but I can't be exactly --
Q. Yes.
A. Yeah.
Q. Can you try and keep your voice up a little, because you're a little bit faint. Try and speak as clearly as you can.

Have you undertaken any formal training or qualifications in relation to the installation of rainscreen cladding façades?
A. No.
Q. What about any formal training in relation to fire safety in terms of installation and fitting work?
A. No.
Q. Originally, when you became a fitter, had you served as an apprentice before you did that?
A. I used to work in a factory, actually, manufacturing the windows.
Q. Yes.

5
A. So it was a progress from there on to then the fitting side of things.
Q. I see. Yes.

Just on the Grenfell project, and I just want to establish this now, did you yourself ever install any of the cladding, the insulation, the cavity barriers, or were you just supervising others doing the install?
A. No, I done it myself as well.
Q. Okay, great.

Now, I just want to ask you some questions about your witness statement to the Inquiry. If we can go to page 5 of your first witness statement, that's \{OSB00000086/5\}, at paragraph 1 you describe there that Osborne Berry has two directors, it's a small company, yourself, Mr Osborne, I think your wife is the company secretary; is that right?
A. Yeah.
Q. And one employee fitter.
A. That's correct.
Q. And on the Grenfell project, is it right that you were known as Bez?
A. Yes.
Q. I think we looked at this yesterday with Mr Osborne, but Mr Osborne's witness statement, paragraphs 1, 2 and 3, are very similar, almost identical, to this. Did you

6
prepare your statements at the same time?
A. As far as I can recall we did, yeah.
Q. Did you check your statement before you signed it?
A. I checked mine, yeah.
Q. You did.

Looking at this page 5, paragraph 1, you say in the second substantive paragraph:
"Osborne Berry undertakes work for private
individuals, companies and local authorities.
Osborne Berry provides the labour and fitters (this includes Mr Berry and myself) ..."

Do you see that there?
A. That is a mistake, yeah.
Q. So you have referred to yourself in the third person.
A. Yeah, I did, obviously, yeah.
Q. Is it possible that that had been taken over from Mr Osborne's statement?
A. Possibly, I don't know.
Q. You don't know?
A. No.
Q. You can't help us?
A. No.
Q. Okay.

Now, in terms of your engagement on the Grenfell Tower project, I want to ask you some questions

## 7

about how Osborne Berry came to be instructed on it .
Is it right that, in August 2014, you took
a telephone call from Mr Ray Bailey of Harley about whether Osborne Berry was interested in working on the project?
A. That's correct, yeah.
Q. If we look at page 2 of your second witness statement, that's \{OSB00000091/2\}, and we look at paragraph 2, you say there in 2a, when you're asked what did Mr Bailey communicate, you say:
"Mr Bailey simply explained that Harley had been asked to refurbish Grenfell Tower and would Osborne Berry like to bid for sub-contracted work."

Did Mr Bailey say anything else to you at that stage about the proposed refurbishment works, including what the materials would be that you would be fitting?
A. No, that was just a brief phone call, and then later on we had a meeting at his office to go through more details of what was going to be used.
Q. Right, okay. Can you recall when that meeting took place?
A. I can't recall the exact date, but it would have been some period of a couple of weeks, a month after the initial phone call, yeah.
Q. Yes.

Mr Osborne has said in his evidence that Osborne Berry submitted a competitive tender, and that he was aware that other companies were also tendering for the project. Was that your understanding?
A. Yes.
Q. Again, how did you come to find out about that?
A. Harley used various different subcontractors, and there's obviously different teams who work on different projects at a time, so it's probably just a known thing that other people are tendering for the job, not just one company as such.
Q. Yes.

If we now turn to a document, this is
\{OSB000000061\}, and we look at the top of this page,
this is an email from Rob Maxwell. It is to you, we can
see that when we look further down, and it's dated 24 September 2014, and it says:
"Bez,
"Use this to price the project.
"Kind Regards
"Rob Maxwell."
Then if we scroll down to the bottom on page 3 \{OSB000000061/3\}, we can see that attached is an Excel document, "Grenfell Tower Schedule of Quantities ", E3317. Do you see that there?

9
A. Yes.
Q. Now, let's just turn that up. That's at \{OSB000000051\}. So here we can see it's for Grenfell Tower, and what this does is break down the materials to be installed in different parts of the tower, and it gives the metre squared of --
A. That's correct, yeah.
Q. -- the materials that are required.

Did you look at this document at the time when it was sent to you?
A. I did, yeah.
Q. Was it on the basis of this document that you priced the works?
A. That's correct, yeah.
Q. Was it expected that Osborne Berry would insert its own figures into this document, and then send it back to Harley?
A. No, it was more for us to work out a square metreage price for ourselves, just to compile our overall figure for the job, rather than filling it out and sending it back that way.
Q. Is it right that you were the key person within Osborne Berry that was responsible for looking at the price and the terms on which Osborne Berry was engaged?
A. Yeah.
Q. Is it correct that you understood these to be the
materials you would actually be installing on the
project?
A. Yes.
Q. Yes.
Now, then if we turn on to \{OSB000000046\}, this is
an email from you to Mr Maxwell five days later on
29 September. You just say:
"Price for job £252,465.
"Any problems give me a ring and let me know ASAP if
price is ok to carry on working.
"Thanks bez."
for we can see that you provided a lump sum figure
Can you help us as to how that price was calculated?
A. Purely from the bill of quants.
Q. Yes. So you go through, you work out --
A. Each individual there, where the windows were would be X
amount of metreage for fixing that, which comes to X
amount of figures, and then accumulated all the way down
to the bottom, and then got to the price that we can see
Qow.
Q. Yes. And this is the submission of your competitive
tender; is that correct?
A. That's correct, yeah.

11
Q. Was there any other document at any stage that formed part of Osborne Berry's tender for the work? Was there any other information that you provided to Harley other than just the price for the job?
A. That was it.
Q. That was it?
A. Yeah.
Q. And there is reference there to "give me a ring and let me know ASAP if price is ok to carry on working". What work was carrying on at that time?
A. I'm sure it was purely just surveying work on the building itself.
Q. Yes.
A. Not actual physical -- anything else bar that.
Q. And it's right, isn't it, that Osborne Berry subsequently received a call from Harley confirming that you had been awarded the job; is that right?
A. That's correct, yeah.
Q. Was it Mr Ray Bailey that called?
A. I think it was, yeah.
Q. And was it you that took that call?
A. Yes.
Q. And was anything else discussed about the job at that stage?
A. Not that I'm aware of, no.
Q. Now, if we look at page 3 of Osborne Berry's position statement -- this is $\{0 S B 000000084 / 3\}$-- we can see at paragraph 12 it says there:
"There was no formal contract between
[Osborne Berry] and Harley Facades ... due to their established relationship at the time."

So just to be clear on this, is it your evidence that there was no other contract document that formed part of the agreement between you and Harley?
A. There was no other formal contracts at all, no.
Q. So nothing else which set out the terms upon which Osborne Berry was engaged to carry out the work, the standard by which those works would be carried out, the programme, none of those things were covered?
A. No.
Q. Were they ever discussed verbally with Mr Bailey? Did you have those kind of discussions orally with him?
A. Possibly about programme on the job, but nothing else apart from that, no.
Q. So no discussions about the quality or the standard of work?
A. Obviously because before this, the Grenfell, we'd done other projects in London; Little Venice was six tower blocks overall, and we'd done a tower block in Hounslow the same thing. So obviously, because of

## 13

our -- obviously the previous works, everything was okay, they just expected it to be the same as we carry on just -- any other company we work for, sort of thing.
Q. Yes.

Now, if we go to page 10 of your second witness statement, $\{$ OSB00000091/10\}, and I want to look at paragraph 16b. You're asked the question:
"What caused Osborne Berry to be of the view that making good the inner seals and reveals [this is to the windows] was not within the scope of its work?"

You say:
"This work would have been within Osborne Berry's capacity however it was not specified work within our agreed package with Harley."

So you're clear that it was never part of Osborne Berry's scope of works to do any works to the inner window reveals?
A. No, none at all .
Q. But you say that would have been within Osborne Berry's ability and experience to do that; is that right?
A. That is correct, yeah.
Q. Was it ever explained to you on the Grenfell project why Osborne Berry weren't being asked to tender for that work as well?
A. I think Harley possibly tendered for it, but maybe they
didn't get it, I don't know, but we were never sort of consulted about why we didn't get it or whoever --
Q. Yes.
A. -- stuff like that, so yeah.
Q. I see.

Had you ever had any standard terms in the past that formed the basis of your contracts with Harley? Had you ever had any formal contractual documents, either from Harley or going between you back up to Harley --
A. No.
Q. -- which set out the terms on which you were contracting?
A. None whatsoever, no.
Q. In terms of the standard of workmanship that Osborne Berry was engaged to provide, is your answer the same as the one you gave a moment ago, that it was just to provide the same standard you had done on other projects? Was there ever any specific discussion about that?
A. No, just as before, that was it.
Q. Yes.

Now, is it right that it was part of Osborne Berry's work to remove the old window panes, which consisted of a single pane of glass?
A. That's correct, yeah.

SIR MARTIN MOORE-BICK: Well, presumably you removed the complete window arrangement, did you?
A. No, because the new windows were put on the outside of the building on a shelf angle, so it was further out from the building. We only had to remove the inside single bit of glass so we could carry out our work to put the glass on the inside of the building afterwards.
MS GRANGE: Yes.
A. And then the existing frame was done by another contractor, as far as I'm aware.
SIR MARTIN MOORE-BICK: Oh, I see.
MS GRANGE: Yes, exactly. So the old window frame remained in place at the end of your works, and that was left for somebody else to deal with?
A. Yeah. Originally the frames were supposed to come to site pre-glazed, so everything was inside the frame in one piece, but due to the weight of them we couldn't move them around the building, so they decided to then supply the frames on site with no glass in at all.
Q. Yes.
A. Then we'd go into the residents' flats at the time, then remove the old single bit of glass, install the double-glazed units, seal them all up, and then obviously leave it to another contractor to finish off, to make it good on the inside.
Q. Now, you say that that work was left to another contractor; were you ever made aware during your time on the project which contractor was carrying that out?
A. I saw the guys on site but I didn't know which contractor it was as such, no.
Q. Did you ever think to speak to them about the interface between your work and their work, to make sure that the window reveals were, you know, of the right quality, done properly, and were compatible with the work you were doing on the new windows?
A. I know Rydons took the guys who were doing the job, they went up there, done a sample like we've done our samples on our stuff.
Q. Yes.
A. And then, as far as we know, that was part of Rydon's package, so they dealt with that side of things rather than us.
Q. Were you ever told what the materials were that were being used in the inner window reveals?
A. I saw the materials they were using because, on some flats, they had the materials outside the flats in the hallways, but I didn't pay too much attention. I saw it was a plastic --
Q. Did you see that they were using uPVC outer surrounds with combustible insulation board all the way round the

17
outsides of the windows?
A. I saw the plastic lying in the hallways prior to them going in the apartments that day, but I didn't see anything else whilst I was doing my -- our parts of the work, no.
Q. And when you are referring to the plastic lying in the hallway, do you mean the uPVC?
A. Yes, sorry, the --
Q. The white uPVC?
A. That's correct, yeah.
Q. I see.

Did you ever consider from a fire safety perspective the interface between that work to the inner window reveals and your work putting in the new windows, putting in the EPDM membrane and sealing it from a waterproofing point of view?
A. I didn't look at it on that side of things, I was more concerned obviously the sealing on the outside, with the EPDM of ours, to make sure the building was airtight and watertight, but I didn't look too much about the stuff on the inside as such, no.
SIR MARTIN MOORE-BICK: Mr Berry, I think the transcriber is finding it quite hard to keep up with you, so I'm going to have to ask you to try and speak a little more slowly and try and keep your voice up a bit, if you could,

[^0]19
Q. So is this right: you didn't actually go back and double-check the invoices; you did that, what, from memory?
A. Just roughly from memory, yeah.
Q. We have had a look at the invoices and -- sorry, first question: would that have been net of VAT, those figures you're giving there, or would VAT be on top of that?
A. I can't --
Q. Sorry, would VAT be included in that or not included in that?
A. Probably not included.
Q. Right. So they're net figures?
A. Yeah.
Q. We have had a look at the invoices submitted to Harley between November 2014 and March 2017, and taken away any work that's obviously not on the Grenfell project, and it seems to amount to a little bit higher: 367,000. Do you think that's perhaps more like the amount of work you did?
A. If that's the figures on the invoices, then yes, it would be right, yeah.
Q. I see, yes.

Now, if we can now turn to \{OSB000000050\}. This is, we think, an email from you to Ben Bailey on 28 August 2015, and you say:
"hi ben this is the email I sent to rob for Grenfell tower.
"on top of this price is extras which I discussed with your dad in a meeting at the office. I have a breakdown of this and can send it to you if you want.
"thanks bez."
Do you see that there?
A. Yeah.
Q. What you have done is you have cut into this email and pasted below the email that we saw previously of 29 September 2014. So this email you're sending is almost a year later.
A. Yeah.
Q. Now, can you help us as to what were the extras referred to in this email that you say you had discussed with Ray Bailey in a meeting?
A. It was more the windows, when they come, they were supposed to come pre-glazed, but they didn't, so it was another visit inside the building to put the glass in, so that was an extra over on the original price. There was some EPDM work which wasn't shown on the bill of quants or even on, I think, on the original drawings we had, which was X amount of metres around the building, so that added up an extra on the cost as well. And I think some of it was to do with some Metsec work,

## 21

which is like a steel frame building which makes a structure in between the concrete, and that was some other extra work we weren't aware of, so I just went in and saw Ray Bailey and just discussed and sat down with some notes I had on a notepad of the extra stuff I was asking for.
Q. Yes.
A. And that's all it come to, yeah.
Q. You talk there about extra EPDM work. Was the position that, when you tendered and did your original price, no EPDM had been included and then when you got to site you realised it did need to have an EPDM membrane, or was it extra EPDM work?
A. No, it was EPDM work to go round the frames itself, because once they were in the building, because they were so far out from the building, there was obviously a gap all the way round which needed to be waterproofed and air tested as well, so the EPDM work was included on to that afterwards.
Q. So all the EPDM work came as an extra later?
A. That's correct, yeah.
Q. Can you help us, who was it who identified the fact that the gaps were so big they would need this EPDM seal round the outside?
A. I think it was when Mark done the original sample window
on the 15 th or the 16 th floor, I can't remember which floor it was.
Q. Yes.
A. Installed a sample window so the client, Rydons and other people could come and see it.
Q. Yes.
A. And obviously the interface between the two was -- there was a gap there, as such, so they decided they would put EPDM round to make sure it was weathertight and airtight as well.
Q. We heard about that mock-up of the windows on the 15 th and 16th floor. We heard about that from Mr Osborne yesterday.

Can you help us as to when approximately that was done? How far into the project? I mean, were you on site already when you did that, or did you go in to do that before you got to site?
A. I think it was done prior to me going there, but I can't be $100 \%$ sure.
Q. Can you help us as to whether that was 2014, 2015?
A. I would have said 2015 myself.
Q. Yes, okay.

You have said that Rydon were there for that mock-up, and presumably people from Harley; is that right?

23
A. I would have thought so, yeah.
Q. Can you be more specific as to precisely who was there for that mock-up exercise?
A. I can't remember because I can't remember if I was there on site at the time or not.
Q. Yes.
A. I do remember, once I got on to site, seeing obviously one had been fitted, but I can't remember whether it was prior to me being on site or not, I can't remember.
Q. And you are clear that one of the things that came out of that mock-up exercise was a need to put an EPDM membrane around the outside of the gaps in the windows?
A. That's correct, yeah.
Q. Now, if we can turn now to \{OSB000000007\}, this is one of the invoices from Osborne Berry to Harley Façades. This one is dated October 2015, and I just want to ask you a few things about what's in this invoice.

If we look in the third line from the bottom, can you see it says:
"bez and taff no work for 1 day ... £360.00."
Do you see that there?
A. I do, yeah.
Q. Can you help us as to what that item is referring to?
A. I can't remember what it refers to as such, but obviously there was a day we were on site with nothing
to do, so we had to charge them for physically being there for the day.
Q. Yes, I see. Did that happen frequently on the project,
that you were there but had no work to do?
A. Not frequently, I wouldn't have said, no.
Q. But occasionally?
A. Maybe occasionally, yeah.
Q. And then the final line there reads:
" 8 men no work for 1 day machines up in air to look like working ..."

Can you help us as to what that's referring to?
A. I think that was a time where we had no materials on site for that particular day or so, and Rydons had a client meeting with a potential client for another building, so Harley asked us to be up in the air to look like we were working so it was like a normal building site as such, rather than people just sat downstairs doing nothing.
Q. So when you talk about the client, do you mean the TMO client visited and Rydons were anxious to make sure they could see building work progressing?
A. It was Rydons, but I don't know who the client was as such.
Q. I see. And did you do that? Did you go up on the mast climbers and make it look like you were working?
A. Yes.
Q. And how long did you do that for?
A. Just for the day.
Q. For the whole day?
A. Not -- bar lunch break obviously.
Q. Was that just a one-off occasion where that occurred or
did that ever happen again on the project?
A. As far as I know it was just a one-off occasion.
Q. Yes.

Now, some questions about choice of materials now.
If we can go to page 2 of your first witness
statement -- that's \{OSB00000086/2\}-- and if we look at paragraph 4 d , you're asked the question:
"Was the exterior of the building ... compliant with relevant building regulations, fire regulations ..."

And your answer is:
"I do not know the answer to this question. I worked on the basis that all materials supplied to us for installation by Harley were compliant."

Now, I just want to ask: did you ever have any discussions with anybody at any time during the project about the compliance of the materials you were fitting with the Building Regulations or any other relevant legal requirements?
A. Not that I'm aware of, no.
Q. Did you ever have any discussions with anyone on the project about the fire performance of the materials that you were installing? Did that topic ever come up?
A. No.
Q. Did you ever discuss the fire performance of what you were installing with Mr Osborne or anyone else internally within Osborne Berry?
A. No.
Q. Or with Harley?
A. No.
Q. Did you ever have any reason to consider yourself the performance of the products you were asked to install in terms of their reaction to fire or their combustibility during your time on the project?
A. No, because we used similar products on other buildings, the same material as such, so if you'd done it on previous buildings, we just assumed that it would be there same on this one, there wouldn't be any problems.
Q. When you say, "we used similar products on other buildings", we heard a little bit about that from Mr Osborne yesterday, and he referred, for example, to Little Venice and the Hounslow project.
A. That's correct, yeah.

27
Q. I think one on Commercial Road as well; is that right?
A. Commercial Road was one as well.
Q. Yes. When you say there were similar products, was it just the outer panels that were similar, the ACM panels, or was, for example, the insulation and the cavity barriers similar?
A. The insulation was similar on Commercial Road.
Q. Yes.
A. And then the actual panels themselves were similar to -it was a different company, but one was Reynobond and one was -- I can't remember the name now, it begins with A --
Q. Yes.
A. -- which was used on Little Venice.
Q. And when you say the insulation was similar on Commercial Road, do you know what type of insulation you were installing on Commercial Road?
A. It was either a Kingspan or a Celotex. I can't remember which one it was, but it was one of them two.
Q. So it was a solid board insulation?
A. That's correct, yeah.
Q. Did you know what type of product it was, for example whether it was a PIR, polyisocyanurate, or a phenolic foam insulation? Did you know that?
A. No.
Q. And Commercial Road was how tall, can you help us?
A. Erm ... about 20 floors, approximately, something like that.
Q. Yes, so a tall building?
A. Yeah.
Q. What about the cavity barriers on those projects? Were you using Siderise cavity barriers?
A. We were using a cavity barrier but I can't remember what manufacturer it come from, to be fair .
Q. Yes, okay.

Had you ever heard of the term "class 0 " or "national class 0 " in relation to the fire performance of materials?
A. No.
Q. No.

Now, in your witness statement -- this is page 2 of your Met statement \{MET00019985/2\} -- you say that you didn't have any concerns about the materials because you had used them before. Does that summarise, in essence, your view about whether they were acceptable for use, that simply because you had used them before on other projects, you just assumed they could be used on this project as well?
A. Yeah, because it was the same height of building, a similar sort of product as well, so yeah.

29
Q. Can we turn now just to look at the outer panels, the cladding panels themselves. If we can bring up \{BBA00000047\}, this is the BBA certificate for the Reynobond ACM panels that were being installed, the aluminium composite panels. It was issued in January 2008. We get that towards the bottom of the page in the pale blue box.

Have you ever seen this document before?
A. No.
Q. So it must follow, therefore, you didn't see it on the Grenfell project?
A. Not that I'm aware to, no.
Q. If we turn on in this certificate to page 3 \{BBA00000047/3\}, at the top there's a general section, if we could focus in on that. In the third paragraph, it says:
"It is important for designers, planners, contractors and/or installers to ensure that the installation of the cladding is in accordance with the Certificate holder's instructions and the information given in this Certificate."

Were you aware at any stage on the Grenfell project of being provided with instructions from the manufacturer, that would have been Alcoa or Arconic?
A. No.
Q. So, again, does it follow that you didn't check any manufacturer's instructions before you installed the ACM cladding?
A. That's correct, yeah.
Q. In terms of that installation, how did you know how to install it? Were you simply following Harley drawings, or were you drawing on past experience of installing panels?
A. Mainly Harley drawings, and this system was different to the ones we done before because it was a hook-on system.
Q. Yes.
A. So there was only one way you could install the panel on to the building anyway, with the rails and the hook-on system anyway, so yeah.
Q. Had you ever worked with a hook-on or cassette system before when installing these types of panel?
A. Not this type of panel, but a similar panel. It was an aluminium panel with a hook-on system at I think it was Newham Hospital in London.
Q. Yes, okay.

Then if we go to page 6 \{BBA00000047/6\} of this certificate and look at section 10 , it says in paragraph 10.2 there:
" Installers must be trained and approved by the Certificate holder who can provide technical assistance

31
at the design stage and at the start of the installation ."

Do you see that there?
A. Yeah.
Q. Did Osborne Berry ever receive any training from the manufacturer, by Alcoa or Arconic?
A. No.
Q. Do you know whether Osborne Berry was approved as an installer by Alcoa or Arconic?
A. Don't know.
Q. Were you aware at the time you were installing the panels that the way they were being fixed on the Grenfell project differed from the standard Arconic detail for the cassette system?
A. The system we've used before was a riveted system.
Q. Yes.
A. And obviously the Grenfell was a hook-on system, so that's the only difference we're aware of, yeah.
Q. So you weren't aware that there might have been differences between how Arconic would as a standard recommend the cassettes to be installed and how you were installing them? For example, the types of bolts that they were hung on to.
A. No.
Q. What did you think at the time you were working on the
project was inside the core of the panels?
A. It was a black material of some sort. We've used it before on different projects as well. It could be a plastic -- it could have been plastic, I don't know, but you can definitely see the black material inside the core itself.
Q. Yes. So you said it might have been a plastic ; did you actually know at the time you were installing it what the core was?
A. No.
Q. Did you know it was a plastic?
A. Maybe when we've -- we had to cut some on the main roof area, we cut some panels down up there, but when you're cutting through aluminium and possibly a plastic core as well, yeah, but not -- I wasn't totally aware of it as such.
Q. So you didn't know that the core was made of something called polyethylene, or PE?
A. Not at the time, no.
Q. Had you ever heard of polyethylene or PE in relation to those panels?
A. No.
Q. Did you ever have any discussions about the fire performance of the panels or the core with anybody on site?
A. No.
Q. Were you aware when you were installing the panels on the main part of the building that the core of the panel was exposed all around the perimeter of the panel?
A. Yeah, I knew that, yeah.
Q. Just on the mock-up, you have helpfully referred to the mock-up that was done on the 16 th/17th floor. Can you recall whether you already had drawings by that point? Presumably you must have had some drawings.
A. There was drawings on site at that point before we'd done the mock-up, yeah.
Q. Mr Osborne talked yesterday about a drawing where some red pen had been applied to the drawing in handwriting --
A. Yeah.
Q. -- to show where the cavity barriers were. Do you recall that drawing?
A. I can't recall it, but it possibly would have happened, yeah, but I can't honestly remember because it was a long time ago, yeah.
Q. I see.

Just a few questions about the insulation now.
Were you aware of what the different types of insulation were that were being used in the tower between levels 4 and 23 on the spandrels and the
columns?
A. I knew it was a solid Kingspan/Celotex material as such, that was it, yeah.
Q. So you knew they were either Kingspan or Celotex. Did you know anything about the specific product that they were?
A. No.
Q. So you didn't know that the Celotex was RS5000?
A. No.
Q. Or the Kingspan was K15?
A. (Witness shakes head).
Q. Was some of the Celotex unbranded, like plain in the foil on the outside? Can you remember that?
A. I can't honestly remember, they might have been.
Q. Yes.
A. When we had deliveries on site, it was a forklift that brought them in pallets at a time. We just stacked them up in the compound we had and then obviously distributed them around the building as such, but I didn't pay too much attention to what was -- if it was branded or not branded, to be fair.
Q. Yes.

Can we look at a photo at this point. This is \{RYD00051704\}. Now, we looked at this photo yesterday with Mr Osborne. If we could focus in on the bit above

35
the mast climber on the left -hand side, I think Mr Osborne confirmed that if you look three levels up from the mast climber right on the far left, you can see some insulation. So either side of the branded Reynobond panels you see some insulation which appears to have the Kingspan marking on. Can you see that?
A. I can see that, yeah.
Q. Is it right that Kingspan was installed on the spandrels and some of the columns?
A. As far as I'm aware, yeah.
Q. Can you help us as to which face of the building this is? If we pan out again now. We showed this to Mr Osborne yesterday, and he thought it might be the east face. Can you help us?
A. I think that's the west elevation, as far as I'm aware.
Q. And why do you think it's the west?
A. Just purely because on the east elevation there was some big trees and other stuff in the way, and I don't think you would be able to get an angle on the camera to take a clear picture like you have on that one, that's all.
Q. Yes, we know it's either the east or west place because it's only got two inner columns.
A. That's correct, yeah.
Q. Yes.

Can you remember when you were first asked to

```
install or when you first started installing the Kingspan K15 product as opposed to the Celotex product? Do you have a memory of the Kingspan suddenly being there as well?
A. I wouldn't say it suddenly appeared there, but there was a difference in delivery -- sorry, a different company that supplied the material as such.
Q. Yes.
A. One was a company called SIG, I think it was, that delivered the first lot, and then the second lot -I can't remember the company's name, but it was a different colour lorry with different stuff on the back of it as such from Kingspan, yeah.
Q. Does that mean you have a memory of two separate deliveries of Kingspan to the site?
A. Yeah. I can't remember the dates, but there was different deliveries, yeah.
Q. Were you told anything about why the Kingspan was being used in substitution for the Celotex?
A. No.
Q. Can you help us, where would the Kingspan have been used? We can see it was used there on the west face, if you're right that that was the west face.
A. Yeah.
Q. Would it have just been distributed to everybody on site
```

37
that day and therefore potentially gone all around the building, or would it have only gone to certain faces that you were working on at the time?
A. It would have been depending on how far each side of the building -- who was working on which side of the building, if it was the west or the north, not the south as far as I know, and it would have been distributed around different floors as the building was going up, because every elevation was progressed at different times, because one was started first compared to the other one.
Q. Yes.
A. So this one could have been the 13th floor and the one on the side there could have been the 15th floor, I don't know for definite, but they were used at different times and different heights of the building.
Q. Thank you, that's helpful.

I now want to ask you some more detailed questions about cavity barriers.

Can we just look first at page 7 of your first witness statement. This is \{OSB00000086/7\}. If we look at paragraph 11, you're asked there about training that Osborne Berry gave to those installing the façade and windows, and in the second sentence you say:
"Osborne Berry had no involvement in relation to the
fitting of cavity barriers."
Do you see that there?
A. Yeah, I do, yeah.
Q. Is that right? Does that remain your evidence, that you didn't have any involvement in the fitting of the cavity barriers?
A. We did -- at the time we classed them as firebreaks, but obviously in hindsight now, with everyone's -- it is a cavity barrier as such, yeah.
Q. I see. So the reason you have answered that way is because you thought what you were installing was a firebreak and not something that was categorised as a cavity barrier?
A. Exactly, yeah.
Q. But you accept that you did install cavity barriers, vertical ones, horizontal ones, on the exterior of the building?
A. We did, yeah.
Q. If we look at the schedule of quantities that was provided, the bill of quantities again, this is \{OSB000000051/2\}, we can see, under "Zinc Rainscreen to columns" at the top of that page, that "Vertical fire stops" are listed as the second to last item in that list.
A. Yeah.

39
Q. Can you see that there? 362 metres there of that.

Then a little further down the page, under "Zinc Rainscreen to walls", we've got "Horizontal fire stops: 2,152 m".

So we can see that a lot more horizontal firestops were going to be required than vertical. That's right, isn't it?
A. That's correct, yeah.
Q. Was it your understanding, when you were pricing up the job and looking at this, that those two items, the vertical firestops and the horizontal firestops, were two different products?
A. At pricing, no. Not until we actually got on to the site, we found out there were two different -- one was an intumescent strip on the front, which was on the horizontal, and the vertical ones wasn't, it was just a plain firestop itself.
Q. Yes, a full fill firestop.
A. That's correct, yeah.
Q. So just to be clear, at the time you were looking at this bill of quantities, early in your involvement, is it your evidence that you didn't understand that vertical cavity barriers were generally different from horizontal ones in terms of that distinction, one has an intumescent strip and one is a full fill block?

```
A. It all depends what was agreed with obviously the architects and the clients at the time.
Q. Yes.
A. Previous projects we've used different products, but not with an intumescent strip as such. We've used one at Hounslow, it was more of a foiled, very thin piece of material that was fixed the same sort of way but a completely different design aspect from another company as such.
Q. Yes.
So, again, does it follow from your answers that you didn't have any experience of installing these kind of cavity barriers on a building prior to the Grenfell project?
A. We've used them on other ones, yeah, but not with the intumescent strip, as far as I remember.
Q. Right.
Had you ever used the Siderise cavity barriers before? Had you ever used cavity barriers by that manufacturer?
A. Not that I'm aware of. We might have done, but I can't remember.
Q. Yes.
If we can just pull up briefly \{HAR00008991\}. These are the Harley specification notes for the project which
```

we now know that Kevin Lamb put together. Do you remember ever seeing these on the project?
A. I can't remember seeing them as such, no.
Q. Would you normally expect to see a specification like that, or would you normally expect only to see drawings?
A. On a drawing you'll see a specification in the right-hand side of what, on that particular one, you're doing. If it was a window, it would give you the specification, the style of the glass that's going to be on there, or if it's showing one with insulation, again on the right-hand side there will be a column saying what -- each product on that drawing itself .
Q. I see.

The Harley drawings that we've looked at and we've had for the project didn't have, for example, the main insulation product specified, so it didn't have the Celotex or the Kingspan specified on it. Do you have a memory of having drawings that did have that insulation specified on it?
A. Maybe not the manufacturer's name of the thing on it .
Q. Yes.
A. But maybe on the horizontal it might have said on the side there two lots of $80-\mathrm{mil}$ insulation as such, but not maybe the name of the company as such, yeah.
Q. I see. So you knew you were installing two thicknesses
of 80 -mil insulation, and then, what, when you got to site, you would then be provided with those boards --
A. That's correct, yeah.
Q. -- and you would have installed them?
A. Yeah.
Q. So you wouldn't necessarily know until the moment of your install exactly what the product was?
A. No.
Q. Would the same apply to the cavity barriers, that you wouldn't know until you literally started installing those barriers what the product was?
A. They might have said that we were getting delivery of the cavity barriers next week and the name of the company who was supplying them, but that would have been it, yeah.
Q. Now, on the specification notes, on the right-hand side, around halfway down the page, it says "Fire breaks refurb zones", and we can see there that the distinction is being drawn between two different products, the horizontal and the vertical, with the horizontal being ventilated breaks and the vertical being full fill non-ventilated breaks. Do you see that there?
A. I do, yeah.
Q. So can you help us, when did you first understand on the Grenfell project that there were these two types of

43
cavity barriers?
A. When the first delivery turned up, which would have been the horizontal one with the black strip on it, we saw that.
Q. Yes.
A. Then it wasn't until we were doing the verticals further down the line that a different product then come in for that.
Q. I see.

If we can turn now to \{SILO0000230\}, this is some of the Siderise marketing material for the two types of cavity barriers.

Can you help us, did you ever see this kind of marketing material when you were installing the barriers?
A. I don't remember, no.
Q. If we go to \{SILO0000227\}, this is more Siderise marketing material, which also contains some installation guidance within it for those installing the barriers. We can see at the bottom of that page you have got the horizontal application barriers and then the vertical ones.

The horizontal ones there have green tape on the outer face. Is it right that on the Grenfell project they had just a strip of green tape on the top of the

## barrier?

A. From the pictures I've seen, yeah.
Q. What about the vertical cavity barriers, do you remember them having any particular markings?
A. Not particularly, no.
Q. So in practice, when you were on site, how were you distinguishing between a horizontal cavity barrier and a vertical cavity barrier?
A. Because the horizontal ones had the black strip on the front edge of them.
Q. Right, I see.

Just to be clear, did you read any guide that looked like this at the time you worked on the project?
A. Not that I'm aware of, no.
Q. Can you help us as to what guidance would have been given to the fitters that you had instructed to work on the project about the installation of the
cavity barriers? How would the fitters know what to do with them?
A. We done the first mock-up, and after that we took them up there, showed them the initial mock-up, and then took them on the mast climbers and explained to them how we wanted it done, showed them how we wanted it fitted on the building, and then after that they were working either beside us on another machine or on our machine as

45
well, so we were watching how they were fitting it and making sure we were happy with their quality of work and stuff like that.
Q. When you were training the fitters, did you draw a clear distinction between what a horizontal cavity barrier looked like and a vertical one?
A. At the time on site there was only the horizontal ones there on site anyway, because the verticals would be done later on.
Q. I see.
A. And we did explain to them that when the vertical ones turned up, they were completely different to the horizontal ones.
Q. So what was the time gap between the installation of the horizontal barriers and the installation of the vertical ones, can you help us?
A. I would say a good two months or more.
Q. Right. Yes.

So the horizontal all go on and the insulation goes on top; yes?
A. That's correct, yeah.
Q. And then the vertical ones go on --
A. Because everything was done with the initial -- with the shelf angles and the windows were installed on the building, and then obviously in between that we filled
in the horizontal firebreaks and the horizontal insulation on that structure as such. The vertical structures, the brackets had to be made and there was a different type of rail system that was being used, so it had to be manufactured as well.
Q. Yes.
A. So more concentrated on the horizontal aspects first, getting that part of the building done, and then going on to do the vertical ones afterwards.
Q. Yes, okay, thanks, that's helpful.

If you didn't have any guidance from the manufacturer as to how to install the cavity barriers, how could you be sure that they were being installed correctly?
A. Because the mock-up we done, the original sample we done, was inspected by Harley, Rydons, the building inspector, Building Control, people like that come and inspect it to make sure they're happy with what the sample looked like, and then for us to progress on after that.
Q. So is it right that you would be relying on Harley and Rydon as part of that mock-up exercise to --
A. Yes.
Q. -- flag up if there were any problems with the cavity barrier installation?

47
A. Yeah.
Q. Did you actually have any vertical cavity barriers to put as part of that mock-up?
A. Not on the horizontal one(sic), no, it was purely just a horizontal one to start off with, and then I'm sure later on there was a vertical one done as well for them to come and check that as well.
Q. Yes.

Now, you also just said that building inspectors and
Building Control would have looked at that mock-up. Do you have a clear recollection of somebody from RBKC Building Control being there looking at the mock-up exercise?
A. I don't remember -- I remember them coming to site because Mark explained they were coming to site to inspect it.
Q. Right.
A. And after they've inspected it, they come back and said, "Okay, that's fine ", and then for us to proceed after that. We didn't do anything until it was checked and everyone was happy with it.
Q. I see. So you had a clear understanding, did you, from what you were told by Mark, that Building Control had seen the mock-up and were happy with it?
A. Correct, yeah.
Q. But they couldn't have seen the vertical cavity barriers
at that stage, could they, because they weren't
installed?
A. They weren't installed, no.
Q. Can you help us, how extensive was the mock-up? Was it
just one window and what was above and below it?
I mean, how far out from the window did the mock-up
actually extend?
A. It done the whole width of the frame itself .
Q. Yes.
A. So literally from column to column it was filled in
completely as it would be on the rest of the building.
Q. Yes, but you hadn't put anything on the columns itself ;
is that right?
A. No, not that I'm aware of, no.
Q. So it stopped short of the columns?
A. Yes.
Q. Sorry, just one more point on the Siderise literature .
Did you ever look in practice at the Siderise
Q. wobsite on site or any Siderise videos as to how to
A. No.
Q. If we look at page 6 \{SIL00000227/6\} of this Siderise
guidance, we can see there's some installation
recommendations there. It's discussing the vertical 49
cavity barrier in the first paragraph. It says:
"SIDERISE cavity barriers for rainscreen cladding vertical is installed within the cavity formed between the rainscreen façade and the inner structural wall, using the appropriate SIDERISE support brackets ..."

Just pausing there, were you aware that you were using Siderise support brackets when you were on site?
A. I wasn't aware what manufacturer it was from, but we were using a bracket as such, yeah.
Q. Then it says this:
"This cavity barrier is fitted vertically under compression, completely filling the void. The product is installed with the plain mineral fibre edge positioned against the structural wall."

## Do you see that there?

A. I do, yeah.
Q. Now, can you help us, was there any sense in which the vertical cavity barriers were installed under compression when they were put on to the Grenfell building?
A. Because they were -- come in oversized, and they were trimmed on site to suit then to fit tight against the panel, as far as I was aware, yeah.
Q. Right.

In practice, did the panel provide any form of
compression?
A. It would have done with the shape of it, yeah.
Q. I see.
A. Because it wasn't a straight flat panel, it was on an angle, so as you fitted it and moved it round to the side rail, that would give you the compression side of things on that.
Q. Right. And were your fitters told that they had to compress the panel in when it was fitted?
A. Yes.
Q. Sorry, the barrier in when it was fitted?
A. Yeah.
Q. I think Mr Osborne explained to us yesterday that the reason these barriers had to be trimmed on site is because the columns twisted as you went up the building so that the gap that you were putting the cavity barriers in changed in terms of its dimensions.
A. It did, yeah, because the concrete itself was never straight and true and flat, so there was obviously a deviance on the measurements from, say, the bottom of the building to the top of the building anyway.
Q. Yes.
A. So there would have been a large one ordered and then trimmed on site to suit.
Q. Do you yourself have a memory of actually physically

## 51

installing vertical cavity barriers and trimming those down on site?
A. I did, yeah.
Q. How many columns would you have installed vertical barriers on, compared with the other fitters ,
for example?
A. Possibly about the same.
Q. How many would you do each, can you help us, in practice?
A. I suppose because they were done more towards the latter part of the job, if I was working on one elevation, I would probably do two columns as such, and they'd be on the machine beside me doing the same principle again, so we would do fairly the same amount as such.
Q. How did it work in practice? Did you do a section of the vertical building first and then work downwards or upwards?
A. We'd go upwards.
Q. You'd go upwards?
A. Yeah.
Q. And would you always install a barrier from bottom to top in one go, or would that work be interrupted depending on where the mast climbers were?
A. Only if there was a mast climber tie in the way, you would have to leave a gap, and that would be it, but
apart from that it would be bottom to top.
Q. Right. Okay.

At the time of the Grenfell project, did you generally understand that the purpose of cavity barriers within rainscreen systems was to inhibit the passage of fire from window openings into the cavities, and also to inhibit the spread of fire within the external cavities? Did you understand that?
A. Yeah, it's to stop the fire moving, yeah.
Q. Did you understand how the cavity barriers were intended to operate in the event of a fire?
A. They were meant to -- they were formed between floor to floor and flat to flat horizontally and vertically, yeah.
Q. What was your understanding of how the horizontal cavity barrier would work in the event of a fire?
A. With the intumescent strip, that when a fire broke out, that would expand out and fill the gap between the panel and the intumescent strip itself .
Q. Did you understand what the consequences might be of poorly fitting cavity barriers? For example, if there were gaps in the horizontal barriers, did you understand that that might mean then once they activated in the event of a fire, there would still be gaps?
A. At the time, I didn't think there was gaps as such, not

53
until we've seen the evidence recently, that there was gaps there, yeah.
Q. I see. So your evidence is that you weren't aware that there was any gaps around the cavity barriers?
A. No.
Q. What steps did you take to ensure that all

Osborne Berry's fitters working on the project understood that cavity barriers needed to be tightly fitted with no gaps?
A. We did tell them at various parts of doing the job that that was what they were required to do, yeah.
Q. Did you ever have to remind them? I mean, how did it work in practice? Did you ever become concerned in practice that they weren't tightly fitted and so you had to go back and remind particular fitters to do it?
A. I don't remember particularly reminding anyone in particular, but at different stages of the build, we would go up ourselves and look at different elevations and check things ourselves anyway and we were happy with what we saw.
Q. Mr Ben Bailey, when he was giving evidence to us, was asked whether he ever gave any instructions or guidance to Osborne Berry about materials to be used in the cladding system, and he said this :
"Other than the cavity barriers being an important
part of that, I don't recall any specific conversations about topics further to that."

That was at \{Day40/138:7\}. So he's singling out, he is saying, that there seemed to have been some conversations about cavity barriers being an important part of the system. Do you recall having a conversation with Harley to that effect?
A. I can't remember a conversation, but possibly there was talk of it when they done the sample in the first place of how it was to be fitted and what important part it was, yeah.
Q. Did Mr Ben Bailey or anyone else at Harley ever give you or anyone else within Osborne Berry any specific guidance in respect of how the cavity barriers were to be fitted?
A. No.
Q. So is the position this: that there was the mock-up, which had horizontal barriers in, everyone was happy with that --
A. Yeah.
Q. -- the fitters were shown that and then they were asked to replicate it?
A. Exactly, yeah.
Q. So no further instructions were given about the cavity barriers other than just seeing that mock-up?

55
A. Yeah.
Q. Now, Mr Osborne explained to us yesterday that when the mock-up was done it was realised that the horizontal cavity barriers needed to be raised to make sure that they didn't penetrate the EPDM membrane. Do you have a recollection of that?
A. I do remember Mark explaining to me that that's the position he got them in, was to raise them up rather than penetrate the EPDM.
Q. Yes.
A. But I'm sure he discussed it with someone from Harley to say it had to be raised up and that was the reason why.
Q. Yes. Does that mean that it wasn't you having those discussions; those discussions were Mark Osborne?
A. Yeah, I remember Mark done the mock-up and then I was working on another part of the building, and then when it was complete, I went and checked to see what he'd done, and he explained to me that he had raised it up because -- and obviously spoke to Harley about it as well, and they agreed with the same -- with the scenario that it had to be raised as well, yeah.
Q. So you were hearing from Mr Osborne about the raising up; you didn't ever discuss that directly yourself with anyone at Harley?
A. No.
Q. In practice, how did you measure where the cavity barriers should go? I mean, how did you know how high up to be installing them, for example?
A. From the original sample we done, there was a set measurement off that, and that's how it worked off the rest of the building.
Q. I see. So does that mean that, as part of the mock-up exercise, your understanding was they raised up the cavity barrier to take it --
A. They did raise the cavity barrier on the original mock-up itself, yeah.
Q. So once they had raised it up, were happy with the mock-up, measurements were then taken and then distributed to the rest of you; is that correct?
A. That's correct, yeah.
Q. Thank you.
Have you yourself had a chance to consider the parts of Dr Lane's report which highlight poor workmanship in the installation of the cavity barriers, for example horizontal cavity barriers installed in the vertical position, poorly fitting and cut cavity barriers with rough edges and gaps, or cavity barriers cut around cladding rails, creating gaps? Have you seen those?
A. I have seen Dr Lane's report, yeah.
Q. Do you agree that those photographs appear to show that

57
there was poor workmanship in the installation of the cavity barriers on site?
A. From the pictures I've seen, yeah. I've seen them particular ones, yeah.
Q. Did you ever notice that on site?
A. I didn't notice it on site at all, no.
Q. Can you help us as to how it might have come about that we now have photographic evidence of poorly fitting cavity barriers or cavity barriers in the wrong orientation and that wasn't picked up on site? Can you help us as to how that situation might have arisen?
A. I can't see how it's arisen because of the other checks that people have come round after we've installed the stuff ourselves, there was checks after we've installed all our stuff on the building anyway, the insulation, the firebreaks as such.
Q. Yes.
A. So I can't see how that got missed, to be fair .
Q. Can you help us, who is it you understood would have checked the cavity barriers and insulation before the panels were being installed?
A. As far as I'm aware it was Ben Bailey.
Q. Right.

Mr Osborne explained yesterday that there would often be only a small time gap between installing the
cavity barrier and then putting in the insulation boards around it. Do you agree with that?
A. Yeah, but there would have been times where -- lunch times or at the end of the day, there would have been areas open that weren't completed as such which someone could inspect at that time. So there was never ever a time where someone would have been up the building and every area was completely finished as such, yeah.
Q. So is it your evidence that, in your view, there would have been plenty of opportunities in practice for anyone inspecting that work to have seen the quality of the cavity barrier installation before the insulation was put on as well?
A. Yeah.
Q. Yes.

Ben Bailey said he found the pictures in Dr Lane's report shocking. Would you agree with that?
A. I would agree with that, yeah.
Q. Now, I'm not going to take you to all the pictures in Dr Lane's report, because you've just given the answers you've given, but what I do want to ask you about a little more is this point about horizontal cavity barriers installed in the vertical position.

If we can just look at a photograph of that in Dr Lane's report, this is \{BLAS0000008/48\}. If we can

59
just blow this up, this is figure 8.52 of Dr Lane's first report in Phase 1. What we can see here is she's highlighted an RH horizontal cavity barrier installed in the vertical position. We can also see that it's been installed with the intumescent strip facing in to the building.

## Do you see that?

A. Yeah.
Q. Did you ever see any examples of that while you were on site?
A. I didn't, no.
Q. Had you seen that installed in that way, what would you have done?
A. I would have replaced it, taken it off and replaced it with the correct one.
Q. If we can just look at another photograph, this is from the BRE report that they did for the Met Police.
I didn't look at this photograph yesterday, but I want to today: \{MET00039807/52\}. So this is a report that the BRE did for the Met. It's dated February 2019, and it 's once the BRE had finished its site inspection work after the fire.

Here we've got figure 34, and they've got in the caption at the bottom:
"' Open state' cavity barrier being used as a 'closed
state' barrier installed with the intumescent strip facing concrete ..."

Do you see that there?
A. I do, yeah.
Q. If we look at the paragraph below this, the BRE say this:
"Vertical cavity barriers were installed on columns which coincided with compartment walls and on corner columns. These appeared to BRE to have been intended as conventional ('closed state') cavity barriers, wherein the mineral wool construction of the cavity barrier ought to be compressed between the surfaces of the cavity. The vertical cavity barriers removed were Siderise Lamatherm RH25 i.e. the same barriers used at horizontal locations. As mentioned above these barriers, designed as 'open state' barriers but here being (improperly) used as 'closed state' barriers, comprise a foil face and intumescent strip sealing the leading edge."

Do you see that there?
A. I do, yeah.
Q. So Dr Lane's investigation that she did after the fire and the BRE's investigations both indicated that they were finding vertical cavity barriers which were horizontal, and not true full fill vertical

61
cavity barriers.
Can you help us as to how that situation might have come about?
A. I can't explain it, to be fair, because they were two different products installed in two different areas on the site itself.
Q. Is it possible that some of the fitters, some of the installers working for Osborne Berry, were left to their own devices when they were fitting these barriers, and installed horizontal in the vertical position without there being any checks of that?
A. Most of the time we were always on site looking at what people are doing on various mast climbers around the building, so I can't see how -- it's happened, but I can't see how it would have happened as such.
Q. Was there any specific instruction or training given to the installers when the vertical cavity barriers arrived? You say that that was later.
A. Yeah.
Q. You didn't have those to start with. Do you recall actually talking to them, saying, "Right, these are different "?
A. These are different, they were completely different pallets, stored in a different location on site, and you could see the complete difference. Like I say, one had
the black strip on the front, the other one didn't at all, so we did say, "These are the vertical ones, these are the horizontal ones". And the same thing again, we did training on -- done a mock-up, we showed them how the mock-up was done and then explained that that was a repetitive thing around the building again from there.
Q. Can you help us about this: if, as we see, some horizontal barriers have been installed in the vertical position, wouldn't that mean that at some point you might have run out of horizontal barriers?
A. No, because they would have been fitted first, before the vertical ones.
Q. I see. Because we're just a little bit puzzled as to how you would have had enough horizontal barriers to have installed them horizontally and then to have had some left to be installing vertically, as some appear to have been done in that way.
A. Because, like I said before, the horizontal ones were always fitted first on the whole building prior to the vertical ones anyway.
Q. Okay.

SIR MARTIN MOORE-BICK: Well, then, I'm slightly surprised you had enough horizontal ones left over to use them as verticals.
A. I can't explain why there was more left over. Maybe

63
when you buy X amount of that, you get a pallet full,
I don't know, I can't remember.
SIR MARTIN MOORE-BICK: Okay, thank you.
MS GRANGE: Thank you.
Do you agree that the works we've seen in these photographs and then the works -- you've said you have already looked at Dr Lane's photographs. Do you agree that those works were unacceptable and not carried out with reasonable skill and care?
A. They were unacceptable, yeah.

MS GRANGE: Cavity barriers around windows.
Perhaps if I can just do this short topic and then we can break. That would be a convenient moment.

## SIR MARTIN MOORE-BICK: Yes.

MS GRANGE: At the time you were working on the Grenfell project, were you aware that there was extensive industry guidance, including in something called Approved Document B, which indicated that cavity barriers had to be installed around window openings in order to comply with the Building Regulations?
A. No.
Q. Had you ever in any other previous projects installed cavity barriers around windows?
A. No.
Q. Had you ever installed mineral wool or Rockwool compressed around window openings?
A. No.
Q. Had you ever heard at the time of Approved Document B on fire safety?
A. No.
Q. Or looked at any of the diagrams in it?
A. No.
Q. Did you notice at the time that there were no cavity barriers around the windows at Grenfell Tower?
A. I didn't, no, because we followed the drawings we were supplied and we fitted it to them drawings.
Q. Were you surprised that there was no mechanism around the sides of the windows for inhibiting the passage of fire round the edges or the head or the cill of the windows? Were you surprised about that?
A. No, because it's similar sort of design work we'd done on previous projects before.
Q. Right.

Did you ever have any discussions with anybody on site about the fact there weren't any cavity barriers or other form of firestopping around the windows?
A. No.

MS GRANGE: Mr Chairman, I think that would be a good moment. We're doing well, but I think it would be

65
sensible to break now, and then hopefully I can finish my remaining questions fairly speedily, and then we will have the final break.
SIR MARTIN MOORE-BICK: All right.
Well, Mr Berry, we're going to have a short break now. We'll come back at 11.35, please.

While you're out of the room, I have to ask you not to talk to anyone about your evidence or anything to do with it.
THE WITNESS: Okay.
SIR MARTIN MOORE-BICK: All right? Now, if you go with the usher who is down there, she will look after you.

## (Pause)

Right, 11.35, please.
MS GRANGE: Thank you.
(11.18 am)
(A short break)
(11.35 am)

SIR MARTIN MOORE-BICK: Right, ready to carry on, Mr Berry?
THE WITNESS: Yes.
SIR MARTIN MOORE-BICK: Good, thank you.
Yes, Ms Grange.
MS GRANGE: Yes, thank you.
Just a couple of questions arising from your evidence this morning.

You told us that the horizontal cavity barriers were installed some time before the cavity barriers on the vertical columns.
A. Yeah.
Q. Can I clarify one thing about that: does that mean that you left -- there were horizontal barriers going round the columns, weren't there --
A. That's correct.
Q. -- as well as vertical ones?
A. Yes.
Q. Were those horizontal ones on the columns also left until later?
A. They were, yeah.
Q. So you basically get the spandrels done first, then later you come back to the columns; is that right?
A. Which was horizontal and vertical at the same time, yeah.
Q. Yes, horizontal and vertical at the same time on the columns?
A. As you're going up the building from bottom to top, yeah.
Q. On the columns?
A. Yes.
Q. I see.

I think you also referred to the fact that there was
67
a second mock-up in which the vertical cavity barriers were shown; is that correct?
A. Yes, as far as I'm aware, yeah.
Q. Did you yourself see that second mock-up?
A. Yes.
Q. And what steps were taken to ensure that installers saw it and were given instruction about, say, the difference between the horizontal and the vertical barriers and how the vertical barriers should be fitted?
A. The same as we done with the original horizontal one, we took them all over there, explained to them how we do things, and then took them on to the mast climbers on the other side of the building and done our own sample and showed them as we went up how to do it on the same mast climber, and then they were then moved to the mast climber besides and worked alongside as we went up the building.
Q. I see.

Would you be keeping a close eye on them when you were on an adjacent mast climber?
A. Yeah.
Q. Great.

So now just a few more questions on that same topic, really, about supervision and training.

If we look at Osborne Berry's position statement,
\{OSB000000084\}, paragraph 7, there you say you began work around the end of August 2014 and completed it around June 2016, and in the second sentence:
"[Osborne Berry] did not subcontract the work, however they used normally 8 up to 14 self-employed fitters throughout the installation process."

You see that there?
A. Yeah.
Q. On what terms were the self-employed fitters engaged by Osborne Berry?
A. They were on a day-work basis only.
Q. Right.

Is it correct that the company usually recruited its fitters by way of an agency?
A. Sometimes we have used agencies in the past and on Grenfell we did as well, yeah.
Q. What steps did you take on the Grenfell project to satisfy yourself of the installers ' competence and suitability for the work prior to them beginning any install?
A. Is this the guys from the agencies or the other guys?
Q. Well, if it's different, tell us about both.
A. There is no difference as such, it's whoever come to site, we would then put them with either me or Mark or someone who has been on there a while who is competent

69
enough to do the job, and they would take them under their wing and show them what to do as well.
Q. That would be agency staff?
A. Agency would have been the same as well.
Q. Exactly the same?
A. Yeah.
Q. I see.

Did you have a means of recording who was working on the project at any particular time?
A. We didn't. We had a site diary, just putting names down and where they were working on some elevations and stuff, but there was a -- from Rydons themselves, they would have had a -- every time you went through the site, you had a fingerprint scanner, so that would have been recorded on their system, how many people were on site and who was on site as well.
Q. I see.

Now, if we can look at an email at this point, this is $\{$ OSB000000080\}. This is an email much later in time; in fact, it's after the Grenfell Tower fire. It's headed "Training". It's from Ray Bailey to you on 8 August 2017, and he says:
"Hi Bez, as part of our QA system ..."
Is that quality assurance system, is that how you would understand that?
A. Possibly, yeah.
Q. "... we need CSCS and train course details for all of your operatives.
"I have enclosed a chart that we used on a previous project to give you a start."

Where he is referring there to CSCS, is that Construction Skills Certification Scheme --
A. That's correct, yeah.
Q. -- details?
A. Yeah.
Q. Now, did you ever get a request for similar information on the Grenfell project? We can see here that in August 2017 you're being asked by Ray Bailey to provide those details, but did you have to provide them on the Grenfell project?
A. No.
Q. When did the change come about in your mind?
A. This is the first time I had received something from Ray about this situation as such.
Q. And what project was this for, can you help us?
A. I can't remember the project or such or what it was involved with as such, but ... reading the email now, obviously it got sent to me, but I can't remember it $100 \%$, but yeah ...
Q. Yes.

## 71

If you had received such a request during the Grenfell project, would you have been able to provide CSCS and train course details for all of your operatives?
A. Yeah, because you can't go on site without a CSCS card --
Q. Yes.
A. -- to work on a site as such anyway, so you need a CSCS card to go on site to work.
Q. Right. Yes.

What about -- I think he means training course details, does he, there?
A. Train course details could possibly be on the training as such, yeah.
Q. Yes.
A. But most of the time it was -- on each particular job, we done the training on site, because every job is just slightly different. But training courses can be either IPAF tickets, PASMA tickets, which is down to tower scaffolds, or the IPAF tickets for mast-- not mast climbers, scissor lifts or cherry-pickers as such.
Q. So is it right, then, that if you had been asked to provide training course details for all your operatives on the Grenfell project, you wouldn't have been able to do that because they were trained on site?
A. Yeah, but plus we had training on site from Harley themselves for asbestos awareness course, and we had one on there for a harness course as well.
Q. For a harness course, okay.
A. That was on the Grenfell one itself .
Q. If we can now turn to another email thread,
\{OSB000000053\}, and I want to pick it up at the bottom of page 3 and on to page 4 \{OSB000000053/4\}.
So this is an email thread which is in relation to the Grenfell project. It's from you, I think, to Jason Maher, and is it right that he was from Total Site, is that what it's called?
A. That's correct, yeah.
Q. About labour on the Grenfell project; yes?
A. Yeah.
Q. So we can see on 20 August 2015 you sent the email, and if we look at the top of the next page for what you said, you say:
"On the rates can we negotiate at (sic) little I was hoping to pay $£ 15$ for a fitter and $£ 13$ for a fitters mate."
Do you see that there?
A. Yeah, I do, yeah.
Q. Can you just explain to us the distinction between a fitter and a fitter's mate?

73
A. A fitter is a person who can fit the stuff on a building, and a fitter's mate is literally helping him lift stuff on, hold things while he fixes it, stuff like that. It's just a term in the trade, it's a fitter 's mate.
Q. I see. And you would have both employed on the Grenfell project, would you?
A. Yes.
Q. Yes. Then at page 2 \{OSB000000053/2\}, if we follow this email chain through a little bit, at the bottom of the page, Mr Maher writes to you on 21 August at 14.19 and it 's about labour requirements, and then I am afraid we have to go to the top of the next page \{OSB000000053/3\} to see what he said. He says:
"Both fixers are sorted but struggling with the mates.
"Do you just want me to keep looking?"
Do you see that there?
A. Yeah.
Q. Then if we can move up page $2\{$ OSB000000053/2\} to your reply to that, it's at 16.37. So on 21 August you say this back to him:
"I don't mind if they are not fitters mate.
"The only thing is if I don't have 4 extra people on site Monday I'm in real trouble with the md of the
company I'm working from at the moment.
"You can always change them over anytime.
"Let me know how you get on.
"Thanks grahame."
Now, I just want to ask you a few things about that.
When you say in the first line, "I don't mind if
they are not fitters mate", do you mean you don't mind
if they're not fitters, mates?
A. Mates, yeah.
Q. You are not saying, "I don't mind if they're not fitters ", and then calling him casually "mate"?
A. No, no. I didn't mind if they're not fitters ' mates. If there was four fitters turned up on site, it wouldn't have mattered.
Q. You were happy.
A. Because it says later on that he can swap them over anyway.
Q. And when you say, "You can always change them over anytime", what do you mean, change them over any time?
A. Ie going from a fitter to a fitter 's mate.
Q. I see.
A. So you still keep a fitter on site, but instead of paying for four fitters, you would have a fitter's mate and a fitter working side-by-side with each other.
Q. So are you saying that you would change a fitter down to

75
a fitter 's mate on site?
A. Only if you had four fitters turn up on site.
Q. Yes.
A. Then you would swap them back to two fitters and two fitters ' mates, that's what it refers to as such.
Q. I see, okay.

Did you ever engage labour on the project who you didn't think had the right skills required to do the job? Were you ever forced into that position in reality?
A. Not that I'm aware of, no.
Q. If we complete this email chain and we go to the top of page 1 \{OSB000000053/1\}, towards the bottom of page 1 , on 26 August 2015 at 13.50, he replies :
"I have replaced all 4 guys.
"Regards."
Then at the top of the page you thank him.
What does he mean by "I have replaced all 4 guys" there?
A. I don't recall, to be fair .
Q. You don't know?
A. No.
Q. So you can't recall whether some individuals were replaced for others?
A. I can't recall, to be fair, and some of it was done by
email and other times it was done by phone only as well, so we might have had a conversation and he's just replied in an email later on just to clarify it as such, so yeah.
Q. Did you ever have cause to say that you didn't want any particular fitters or fitters mates to return back to site because you were concerned about the quality of their work?
A. I can't recall anything like that, no.
Q. If we could turn up \{HAR00010913\}, this is Harley's method statement for the installation of the cladding system. Did you ever see a document like this on the Grenfell project?
A. I can't remember seeing it, but it might have been on site as such, yeah.
Q. I see. This one is dated 5 January 2015. We get that from the bottom left corner on that page. If we turn to page 2 \{HAR00010913/2\}, at the top of the document, and it's got "Persons Involved" -- you see in the table at the top, the second line down in the grey is "Persons Involved", and it's got Rob Maxwell, contracts manager, and then the line below is Osborne Berry Installations, and it says there "Experienced trained operatives"; yes? Do you see that there?
A. Yeah.

77
Q. Now, did you always engage experienced and trained operatives on the Grenfell project?
A. Yes.
Q. Were you ever short of fitters or fitters' mates, such
that you did end up having people on site that perhaps it wasn't ideal to have there but you just had to because circumstances forced that?
A. No.
Q. If you can now turn to \{TMO10009962\}. This is a site inspection report that's been put together by John Rowan and Partners, can you see that?
A. Yeah.
Q. We can see that the person that's actually written this is Jon White. We can see his name is under "Inspector" there.

Did you know Jon White during the time you worked on the project?
A. I don't recall his name as such, no.
Q. Were you ever aware of being introduced to a clerk of works or someone who might have been --
A. I think I got introduced to a clerk of works, but I can't remember his name as such.
Q. I see. Did you ever have an understanding of what that person's role was on the project?
A. Obviously just to maybe check the quality of work and
what was being done on the job itself.
Q. Did that person check the quality of your work, as far as you understood it?
A. I don't recall -- as I say, I can't remember the guy --
this Jon White's name being brought up before in conversation on the site, but maybe he did, I don't know.
Q. But you don't have a recollection of him checking your work?
A. People had been up and checked our work from -- it was either the council, the building inspector or whatever.
Q. Yes.
A. I do recall times there have been people gone up there and inspected our work, but again, name-wise, I'm not sure.
Q. Did you ever receive any site inspection reports like this during your time on the project?
A. Not one like that, no.
Q. Now, we can see in the comments, if we look about halfway down this page in the last paragraph under "Comments", in the very last couple of lines there it says:
"The external cladding is still very behind, instead of an increase in labour a decrease has happened, with only 2 men on site. Further delays will occur."

79

Do you see that there?
A. I do, yeah.
Q. Sorry, we should have noted that this is a report dated 11 September 2015.

Can you help us as to whether it's right that there were only two men on site fitting the cladding at this point?
A. I wouldn't have thought there would only be two men on site ever, to be fair, no.
Q. You don't accept that?
A. No.
Q. Do you ever recall recruiting extra fitters to try and catch up because Osborne Berry was behind programme?
A. Not behind as such, but the email to the agency was to get extra labour on site just to -- because I think it was more to do with the releasing of the mast climbers themselves, because they had done the north and the west first, then they released the east, and eventually they released the mast climbers on the south elevation, so once they released that, you need the extra men just to cover all aspects and all the mast climbers as such.
Q. I see. So there was an increasing demand for fitters as the project went on; is that right?
A. Exactly, yeah. Started off low and gradually built up over time.

```
Q. Now, in your second witness statement, if we can just look at this, on the topic of inspections, if we look at page 8 \{OSB00000091/8\}, we can see there paragraph d at the bottom of the page. You are asked, in relation to the inspections, how were those conducted, how frequent were they, and you say:
"Osborne Berry were not present when inspections by Rydon and Building Control were carried (sic) and we were not provided with any documents."
Do you see that there?
A. I do, yeah.
Q. Does that remain your evidence, that you weren't present when inspections by Rydon and Building Control were carried out?
A. I wasn't. I wasn't, no.
Q. No.
Do you remember ever being provided with a defects list for Grenfell Tower by Rydon, that were defects that Osborne Berry had to rectify?
A. We had some from Harley but I'm not too sure if we ever had any from Rydons as such, no.
Q. Okay.
Then just to be clear, on Building Control, you refer at various points in your witness statement to the results of inspections by Building Control and the fact
```


## 81

there were no issues reported to you.
Just to be absolutely clear, were you ever present during any inspections by RBKC Building Control officers ?
A. No.
Q. So how did you get feedback in practice about what RBKC

Building Control were saying in terms of their inspections?
A. It would have been through a chain in command. There would be -- the building inspector would then speak to Rydon, Rydon would then speak to Harley, Harley would speak to us, so there was always a ladder system as such in place.
Q. If we can look at another site inspection report, \{RYD00082733\}. This is an inspection report, this time dated 16 June 2015, again by Jon White.

If we can look on page 2 \{RYD00082733/2\}, towards the bottom of this page, the second entry from the bottom under "Review site inspection log: Building Control", and in the very first line under the "Note" part, it says:
"Last building control site visit was the same as before Friday 15th May 2015. The only observation was that further details of the cladding fire breaks were required. Rydon to confirm if they have done this ."

Now, were you ever made aware during your work that Building Control were wanting further details of the cladding firebreaks?
A. No.
Q. Just to be clear on Building Control, you're quite clear, are you, that you never had any discussions with anybody who might have been from Building Control to the effect that the cladding system was compliant with the Building Regulations and had been fitted to many other buildings throughout England and Wales?
A. No.
Q. Just my last topic now: complaints. I want to turn to an email. This is \{RYD00038501\}. This is an email from Simon O'Connor at Rydon to Ben Bailey at Harley. You're not copied in here. Simon O'Connor says:
"Afternoon Ben,
"I have concerns over a certain member of your staff on site (Bez Taff's partner) following a number of complaints these comprise of:
"Knocking on windows asking for tea ...
"Banging on peoples windows to scare animals ...
"Feeding the wrong information to residents saying that it's all been put in the wrong way round because of rydon and hopefully it wont leak.
"A complete lack of respect for health and safety
83
(Climbing across climbers - dropping material on public footpaths) to mention a few.
"As you are aware we are tackling a difficult situation with residents as it is and these sorts of comments and behaviours only adds fuel to the fire.
" If I have 1 more incident on site with this individual then I will have no option but to remove him from site permanently.
"Regards
"Simon O'Connor."
Now, I want to give you a chance to respond to this email. We can see now that it appears to be about you --
A. Yeah.
Q. -- and your conduct on site.

Did you ever have these concerns communicated directly to you?
A. No.
Q. So nobody from Harley ever spoke to you about this?
A. I had an email from Ray Bailey about this email.
Q. Yes.
A. And that was it, and I replied to Ray saying that I don't believe what the guy is saying and it wouldn't -- it's not in my nature to do this sort of stuff anyway.
Q. I see. Did you ever speak to Ray Bailey about this?
A. No, I just sent him an email that night when he replied one to me, and that's it.
Q. When Ben Bailey was asked about this, he said he spoke to the individual and said that the behaviour was unacceptable. Do you agree with that?
A. He never spoke to me about this, no.
Q. Did you ever tell residents it's all been put in the wrong way round because of Rydon and hopefully it won't leak?
A. No.
Q. Or anything similar to that?
A. Nothing at all like that, no.
Q. On the part about a complete lack of respect for health and safety, did you ever climb across climbers?
A. Unfortunately I'm not stupid enough to climb across a climber when it's 10 or 12 or 15 floors up in the air. I wouldn't be that stupid or naive to do that, to be fair, no.
Q. Do you know where Rydon got that from?
A. I don't know. The only time we ever got out of a mast climber was when we worked on the roof area, where we took the mast climber to the very top of the roof, had a harness on and we climbed over on to the main part of the roof with a harness clipped on, and

85
that was the only part of -- it wasn't jumping, it was more climbing out, going back on, doing our work and that was it.
Q. What about dropping material on public footpaths?
A. I don't recall anything like that happening at all, but people are human beings, it could be an incident where someone has dropped a screw or nut, but not me personally or anything like that, and there was never anything major recorded on stuff like that anyway.
Q. So can you explain how they might have thought that you were involved in such activities?
A. No, I can't, no.
Q. Were you ever reprimanded or spoken to at any stage about showing a disregard for health and safety on site?
A. No. If you did, you would get a warning and a yellow card first, and then eventually if you were carrying on in this manner that he's talking about, you would be shown a red card and removed from site anyway.
Q. I think we might have the email that you were just referring to. If we could go to \{HAR00013714\}. I think we can see that this email does appear to have been forwarded to you, and there's your reply at the bottom of the page. Sorry, at the bottom of the page it 's Ray Bailey to you.
A. Yeah.

## Q. He is saying:

"Bez,
"I don't believe that this is true, but we need to be squeaky clean, and ultra-professional.
"We have got the job under control and we do not want to give the residents any opportunity to complain.
"Rydon are our biggest customer.
"Ray."
Then your reply at the top is:
"We have not been any of these things at all.
"I don't understand any of this stuff we have been accused of.
"If there is a problem rydons all ways (sic) come and speak to us.
"We are always polite and professional to all people.
"Thanks bez."
So is that the email that you were just referring to?
A. It was, yeah.
Q. Yes.

Just one more question, going back to the mock-ups that we were talking about. Can you help us as to whether it was your understanding that Building Control had seen both of the mock-ups, the one with just the

87
horizontal cavity barriers and then the one with vertical cavity barriers installed as well?
A. I'm sure they did both of them, yeah.
Q. When you say, "I'm sure they did both of them, yeah", is that because you were told that they had seen and inspected both of those mock-ups?
A. I can't recall the exact conversation or nothing, but it would have been -- both would have been inspected at different stages and approved as well, yeah.
Q. And you think inspected by Building Control, do you?
A. Yeah.

MS GRANGE: Okay.
Mr Chairman, I've come to the end of my questions.
SIR MARTIN MOORE-BICK: Right, thank you.
MS GRANGE: If we could have maybe a ten-minute break to sweep up, thank you.
SIR MARTIN MOORE-BICK: All right, yes.
Well, Mr Berry, Ms Grange, as you heard, thinks she has asked all the questions that she needed to ask you, but she needs an opportunity just to check, and sometimes we have questions sent in by other people who are watching the proceedings.

So we will have a ten-minute break. We will come back at 12.10 and see if there are any more questions we need to put to you then.

```
THE WITNESS: Okay.
SIR MARTIN MOORE-BICK: All right? If you would like to go
    with the usher. I don't think you'll have much of
    a chance to talk to anyone else, but please don't take
    it if you do.
THE WITNESS: Okay, thank you.
SIR MARTIN MOORE-BICK: Thank you.
                    (Pause)
    I will say 12.10.
MS GRANGE: Thank you, yes.
SIR MARTIN MOORE-BICK: If you find that you need more
    time --
MS GRANGE: We will say, thank you.
(12.02 pm)
                    (A short break)
(12.12 pm)
SIR MARTIN MOORE-BICK: Right, Mr Berry, we will see if
    Ms Grange has found any more questions for you.
        Ms Grange?
MS GRANGE: Just one question.
SIR MARTIN MOORE-BICK: Only one.
MS GRANGE: Can you help us, when the mock-up was first done
    on the exterior that you talked about of the panels on
    the spandrels, do you know whether the interior of the
    flat was also being mocked up at the same time? Can you
```

    89
    help us on that?
    A. I think, because we were on the exterior of the
building, we didn't see anything when the mock-up was
first done the inside, to be fair ; it was more -- our
side of things was a mock-up on the outside that we'd
done, and then the inside was, you know, a different
department to us, what we were --
Q. Yes, thank you. We were just trying to pin down the
time when that mock-up might have happened.
A. No, I can't really remember, to be fair .
MS GRANGE: Okay, thank you.
SIR MARTIN MOORE-BICK: That's it, is it?
MS GRANGE: That's it. Thank you very much.
SIR MARTIN MOORE-BICK: Well, Mr Berry, those are all the
questions we have for you.
It just remains for me to thank you very much for
coming to give your evidence. It's been very helpful to
hear from you, so we are very grateful, and now you are
free to go.
THE WITNESS: Lovely, thank you.
SIR MARTIN MOORE-BICK: Thank you very much. If you would
like to go with the usher, she will look after you.
(The witness withdrew)
SIR MARTIN MOORE-BICK: Well, now, Ms Grange, we have
another witness, I think.
90

MS GRANGE: Yes, Mr Mark Dixon, and we just need ten minutes or so to do some cleaning.
SIR MARTIN MOORE-BICK: To do the housekeeping, yes.
Well, we will rise. You send someone to come and fetch us when you are ready.
MS GRANGE: Thank you.
SIR MARTIN MOORE-BICK: All right? Thank you very much. ( 12.13 pm )
(A short break)
(12.26 pm)

SIR MARTIN MOORE-BICK: Yes, Ms Grange, now we have another witness, do we?
MS GRANGE: Yes, Mr Mark Dixon, please.
SIR MARTIN MOORE-BICK: Yes, please.
MR MARK DIXON (affirmed)
SIR MARTIN MOORE-BICK: Thank you very much, Mr Dixon. Sit down and make yourself comfortable.
THE WITNESS: Thank you.
SIR MARTIN MOORE-BICK: Yes, Ms Grange.
Questions from COUNSEL TO THE INQUIRY
MS GRANGE: Yes, thank you.
Mr Dixon, thank you very much for coming to give evidence today, we really appreciate it.

If you have any difficulty understanding anything I'm asking you, please ask me to repeat the question or

## 91

put the point in a different way.
Can you please try and keep your voice up, nice and clear, so that the lady sitting to your right can take a clear note of your evidence.

Now, you have made one witness statement for the Inquiry. If I can take you to that, that's at \{SDP00000196\}. It's dated 26 September 2019, and if we go on to page 11 \{SDP00000196/11\} of it, we can see there the date. Is that your signature?
A. Correct.
Q. Have you read that statement recently?
A. Yes.
Q. Can you confirm that the contents are true?
A. Correct.
Q. Thank you.

Now, you have also provided three statements to the Met Police. I'm going to bring each of those up and then just ask you about those.

So the first is \{MET00056696\}. It's dated
18 December 2017, can you see that there?
A. I can.
Q. And I think in this statement you provide certain exhibits to the Met Police. That's just one short statement on one page.

If we can pull up the second Met statement, that's

```
\{MET00056694\}. This statement is dated
20 December 2018, and again, it's a very short one-page statement where you exhibit certain folders for the Met Police.
Then if we can turn up the third statement,
\{MET00056695\}, that's dated 19 March 2018, and it's a longer statement.
Now, have you read those Met Police statements, recently?
A. Certainly I believe the longer one I have. The shorter ones possibly not.
Q. Yes, fine. Can you confirm that their contents are true?
A. I can.
Q. The statements are all in a folder, sorry, I should have said, on your desk in front of you if ever you want to refer to them.
A. Okay.
Q. Have you discussed your evidence with anyone before coming here today?
A. No.
Q. Okay.
So I want to start with some questions first about your background and experience.
It's right, isn't it, that you have worked in the
```

93
construction industry since 1986 ?
A. Yes, I have.
Q. And before becoming a director and shareholder of SD Plastering, is it right that you worked for Rydon for nine years?
A. I did, yes.
Q. And is it right that, at Rydon, you worked in various managerial roles, including project manager and contracts manager?
A. I did.
Q. Is it right that there you oversaw major refurbishment schemes, including replacing windows?
A. Yes, I did.
Q. You tell us in paragraph 12 of your statement
\{SDP00000196/3\} that you joined SD Plastering in 2005,
and there you have overseen dry-lining and refurbishment projects for them since that time; is that right?
A. I have, yes.
Q. Is it right that SD Plastering is a construction company that undertakes, among other things, dry-lining ,
plastering and general building works?
A. We're predominantly a dry-lining contractor.
Q. Yes.
A. And then what we do is we take on refurbishment works and other works that are kind of put in front of us, but
the main core of the company is certainly dry-lining.
Q. Great, thank you.

Now, is it right that at the time that SD Plastering was engaged by Rydon to conduct works at Grenfell Tower, you were also a director and shareholder of SDP Training Solutions Limited; is that correct?
A. Yes.
Q. Can we just look at what you say about that at paragraph 9 of your statement. This is at \{SDP00000196/2\}. So there we see in the first few lines you explain that you were a director and shareholder of this Training Solutions company, and then you say:
"The Training Company provided 10 to 16 week training courses for individuals that wanted to work in the construction industry. Rydon Construction Limited ... had obtained funding to enroll a number of individuals on one of the Training Company's courses. Some of the participants enrolled on the training courses provided by the Training Company will have been involved in carrying out dry-lining and plastering works to the lower floors at Grenfell Tower."

We see that there.
A. Yes.
Q. Now, just on that, were you an instructor on those courses?

## A. No.

Q. So who was providing the instruction for that training?
A. That would have been Rod Shepherd, who would have been one of the other directors.
Q. Right. Did you yourself ever attend that training so you knew what the training was that was being given?
A. Yeah, I did. I certainly had a very good understanding of what was going to be carried out.
Q. Did that training involve any training on fire safety in construction and design, for example around issues of compartmentation, fire spread, combustible materials?
A. It may have briefly touched on it, but it certainly wasn't part of the criteria to particularly do that. This was more to do with general building work, giving them a scope of what we did overall, and really just trying to encourage individuals to come into our industry.
Q. Yes, I see.

Did such courses ever cover the legal requirements around, say, fire safety in construction? Would it have covered anything to do with that?
A. No, there was nothing specific that said, "This is -you need to be totally aware of this ", no.
Q. Yes.
A. This was an introductory course, so although it may have
touched on or Rod may have said something that was going on at that time, and said, "Look, you just need to sometimes look at this and look at that ", they wouldn't have been in enough depth to be able to say to them, "You have got to have a total understanding of this point", because they weren't really taking a direct -one direct line into construction.
Q. Yes.
A. It was about an overview.
Q. Yes, I understand.
Do you think that the course would have mentioned the Building Regulations and, in broad terms, what those requirements were?
A. If it had done, it would have been fleeting.
Q. Yes, okay.
Do you know which Rydon personnel who worked on the
Grenfell Tower refurbishment actually attended the courses?
A. I don't have a list that I can confirm that, no. Q. Okay, fine.
Then prior to SD Plastering's involvement on the refurbishment, did you yourself know Mr Lawrence at Rydon?
A. Yes.
Q. What about Mr Simon O'Connor?
97
A. Yes.
Q. And Mr Osgood, Daniel Osgood?
A. Yes, I knew Daniel as well.
Q. Did you know them well? I mean, as a former colleague, were you --
A. Yeah, I mentored two of them.
Q. You mentored?
A. I mentored both Simon O'Connor and Simon Lawrence when I was still at Rydons.
Q. The purpose of that mentoring, what kind of mentoring were you providing to them?
A. Well, the fact that they fell under my management, so I would have guided them as they were coming through. So, like everybody, anybody that worked under one of my teams, I would have given them some sort of encouragement or directed them, fulfilling the role that I had at that time, whether it be project manager or contracts manager.
Q. Mr David Hughes of Rydon has also said in his witness statement that he has known you since your time as a site manager and contracts manager at Rydon. Is that right?
A. Yeah, I think Dave is probably one of the people I've known longest.
Q. Yes.

Now, can you help us, does SD Plastering have any relationship with a company called SD Carpentry Limited?
A. No.
Q. So they're completely separate entities?
A. Correct.
Q. Yes.

So I'm now going to ask you some questions about when SD Plastering was first approached by Rydon regarding work to the window surrounds. It's that aspect of your works I'm going to focus on.
A. Yep.
Q. We know that SDP also did some works on the lower floors at Grenfell Tower, but we're not going to be interested in those today.
A. Okay.
Q. If we can turn to page 3 of your witness statement to the Inquiry, \{SDP00000196/3\}, paragraph 13, you say there:
"In or around April 2015, I was asked by an employee of Rydon, whose identity I cannot recall with certainty, if SDPL would provide a quotation for undertaking cosmetic works in finishing off the surrounds to newly installed windows in each residential unit at the Grenfell Tower. I believe that this request would have been made verbally during a conversation that took place

99
on site (SDPL having already secured a contract to undertake dry-lining and plastering works at Grenfell Tower) between myself and one (or more) of the following individuals."

So you list some individuals that you may have spoken to at that time; is that right?
A. Yeah, and it may have been a combination of those people that I talked to as well that made me aware of that element of works.
Q. Just to be clear, is it right that SDP were already doing some works at the tower on the lower floors at this point?
A. Yeah, initially we were engaged to carry out works to the remodelling section of the lower floors.
Q. How sure are you that this was in April 2015? How sure are you of the date there?
A. Not exactly, but certainly, through the other documents that I've read now, that this was all taking place between April and May, I believe.
Q. Right, okay.
A. So originally when I did this it was round about April, I think I may have had an initial conversation, but reading all the other documents and the correspondence that have now been given to me, it's clear that it was more towards May and the end of May, I think.
Q. Right, yes. Can I look at a Rydon email at this point. This is an internal Rydon email, \{RYD00032519\}. Now, this is not an email that you would have seen at the time, but if we look at the top it's an email from Simon Lawrence to Adam Marriott, who was also from Rydon. Is that correct? Did you know Mr Marriott?
A. Yes.
Q. It's copying in Zak Maynard and Simon O'Connor, also at Rydon, and the subject is "Grenfell - Internal window trimming and boxing works", do you see that there?
A. I do.
Q. If we look at the second bullet down on this page, what he says is this:
"Mark Dixon - Has been to site to look at the works but hasn't provided a price yet. I've spoken to him this morning. He has a few ideas on design and how to improve things. I've told him to price on the installation as per the show flat with us providing materials just so you can get a comparison against others. If he is in the mix then we can look him (sic) providing materials, design etc. For him to price he needs a proper enquiry to be sent by yourself so he knows exactly what is required."

So do you see that there?
A. I do, yeah.

101
Q. So it would appear that you have been to site to look at the works but haven't provided a price yet. Can you help us, do you think this would have been for the interior window surrounds in February 2015?
A. Yeah, again, like you say, I've never seen this email before and I'm not quite sure of the context. I certainly don't remember going back as far as this, but then even when I was trying to pin the date down of April, that was a little bit of guesswork. There are no diaries to tell us when it was. And it may well have been that in one of my visits, someone has said, "Can you do us a favour, just have a quick look at this for us and see what you'd do".

Obviously my background being that it is with Rydons and that I have worked in kind of different parts of refurb means that I can normally give some sort of guidance or shed some light on perhaps an idea that might make life easier.
Q. Yes, I see.

Where he is referring there to:
"I've spoken to him this morning. He has a few ideas on design and how to improve things. I've told him to price on the installation as per the show flat ..."

Do you think that that was the show flat, flat 145,
where they had done a mock-up?
A. I'm pretty sure that was the only show flat.
Q. I see. There was only one show flat you --
A. I'm fairly confident there was one show flat.
Q. Yes, that's helpful.

Now, we will come in a bit more detail to what you saw at the show flat in a moment. If we can now turn up \{RYD00035207\}, this is a site progress report that Rydon prepared, and it 's dated March 2015. Again, I'm not suggesting you would have necessarily seen this document, but I want to ask you something about what's in it.

In the middle of the first page, paragraph 1, if we can look down the page, can you see there are some numbered paragraphs in the middle --
A. Yeah.
Q. -- after the first lot of boxes? So this is March 2015. It says:
"It is proving difficult to source window trimming subcontractor. Harleys and SD Carpentry are too expensive and SD Plastering are not interested. Everglaze and Fairview are being approached. Order now critical to avoid delay to programme."

Now, looking at that, is it right that at this point SD Plastering -- so you -- had said that you weren't

103
interested in those works?
A. No, I think what the comment there -- I think what it actually means is when someone says to me, "Can you do this ?", the first thing I look at is resource, and if I don't have the resource, I'm not going to say, "Yeah, give it to me" and then I' ll make your life a misery, I would have probably said, "I'm going to struggle to resource this at this point in time, so I've still got all these other works to complete, I' ll leave that with somebody else".
Q. I see.
A. And that's probably why the lack of interest.
Q. Do you think that you expressed that lack of interest after you had seen the show flat or before you had gone into the show flat?
A. Probably on a few occasions. It wouldn't have been on one occasion, it would have probably been me just constantly re-assessing it. As I say, if I've gone there on a day and I was running about and everybody caught me and said, "Oh, I need you to come and look at this ", I said, "No, I probably don't have time to do that ". So -- but it is just assessing where we sit as far as delivery, that's what -- kind of the main factor.
Q. So do you recall being asked on multiple occasions whether you would be happy to take on this work?
A. No, I don't really recall, but I know through process that I would probably have been asked several times.
Q. Can you help us as to what changed such that you did subsequently put in a quotation for that work?
A. For the exact reason that they've kind of said there, that they were struggling to get someone to do it, they needed the confidence whoever could deliver it could deliver it correctly in the right timescale, and I think probably when they come back to me the circumstances on site would have changed slightly and I would have said, "Okay, then I' ll try and help out".
Q. Now, I said I would come on to it, the meeting at the pilot flat, flat 145 . If we can turn up at this point paragraph 17 of your Inquiry statement, that's \{SDP00000196/4\}. Here, I think what you are describing at this point is when you looked at the example window surround with -- and you go on to talk about members of the management team. So you say:
"The example window surround consisted of a number of pieces of plastic soffit and fascia board that had been attached to the window reveals, cill and header. One of the Management Team explained that they were not happy with the standard of finish that had been achieved because, amongst other things, the plastic soffit and fascia boards were prone to 'bowing'."

105
Do you see that there?
A. Yes.
Q. Can I be clear, you're then describing your visit to the show flat, are you, the pilot flat, here?
A. Yeah, I'm pretty sure that's where I got -- the recollection is I remember those conversations; I can't remember if they came before, after or during that visit.
Q. Yes. Where you're referring -- and you refer to it a number of times in your statement -- to the plastic soffit and fascia board, is that what we know of as the uPVC --
A. Yes.
Q. The window surround?
A. The cover sections, yes.
Q. Are they two different things, the plastic soffit and fascia board, or are they one item?
A. No, it was pretty much the same product on every elevation.
Q. Yes. Thank you.

Here you're describing meeting the management team. We will come on to that in a moment. Is it right, though, that Mr Cole of SD Plastering also attended this meeting with you?
A. I believe he would have done, yes.
Q. Is it right that Mr Cole is an employee of SD Plastering and he was SD Plastering's site manager for the Grenfell Tower refurbishment?
A. For part of that project, yes.
Q. Which part did he site manage?
A. He would have managed exactly this part.
Q. So you talk about meeting the management team; is that various personnel at Rydon that you met?
A. Yeah. Again, I think probably on the occasion of this it would have been Simon O'Connor, it may have been two or three other different people in there as well, and certainly while it was going on we may have seen more than one manager in there, but I think it was
Simon O'Connor that attended the first meeting, but again --
Q. Yes.
A. -- it's quite a few years ago now and I can't quite remember which manager was with us.
Q. Okay, that's helpful.

Does that mean you don't think it would have been Simon Lawrence at that stage?
A. I'm going to say no because I don't --
Q. Yes.
A. I can't imagine Simon would have got involved in that meeting at that time.

107
Q. We saw that you say there that one of the management team explained they were not happy with the standard of finish that had been achieved. So you're actually inspecting an installation at this point, aren't you?
A. I'm looking at what the aesthetics are, I'm looking at what it looks like in the window, and the most obvious thing is there's too many components in it.
Q. But just take it one step at a time. Rydons had done a mock-up, had they?
A. Rydons and whoever they had asked to do that had done a mock-up, yes.
Q. Were you ever told who put that mock-up together?
A. No, but since then, again, reading documentation afterwards, I've seen that -- I can't remember the company exactly that was putting it in, but I have seen their name mentioned since then.
Q. I see. So it wasn't you, it wasn't SDP?
A. It certainly wasn't SDP.
Q. Yes.

And you were being asked to comment on the quality of that example window surround at that meeting, were you?
A. No, I don't think I was asked to comment on the quality. I think their main frustration was that -- they'd already made their minds up that the product itself
was -- it was a bit -- there was too many elements to it, so it was trying to simplify what it looked like, so there was a lot of joins in it, and then when you added pressure to some of the sections, you could clearly see that it wasn't supported at the back, which means you was getting this bowing in the cills.
Q. Just breaking that down, you say there were a lot of joins in it. Do you mean a lot of joins in the uPVC trimming around the edge?
A. Yes.
Q. There were lots of joins in that part?
A. Yeah.
Q. You said that there wasn't support at the back. What do you mean by that?
A. Well, meaning that the width of it, so the cavity at the rear -- so when you fix these in place, if it's supported underneath, then there is -- the likelihood of bowing is not going to happen, as long as you use the right fixings. But at the rear of it, where obviously it abutted the window, where the gap was, if you put pressure on it -- and what they're afraid of is the longevity of it. If you put pressure on it, you could then move it, which would just result eventually in it becoming dislodged.
Q. So it was bowing at the back of the cill ; is that right?

$$
109
$$

A. I believe it was -- they were more concerned with the rear of the cill.
Q. With the rear of the cill. What about the jambs down the side and the head, was anyone concerned about the bowing there?
A. The principles would have been the same, but I think you need to remember that vertically you're putting less pressure on it than you are horizontally. Cills are traditionally used to put books and weights and everything else on, and to put your hands on, whereas the vertical side and certainly the head, you're never going to touch the head.
Q. Yes.

Now, looking at paragraph 18 there on that page, and reading on in your statement, you say:
"Andrew Cole proceeded to dismantle the example window surround to assess the manner in which it had been installed. We noted that the 'bowing' occurred where the plastic soffit and fascia board spanned the gap, as nothing had been used to bridge the gap in order to provide the necessary support to the plastic soffit and fascia board. An EDPM gasket had been installed around the new window to create a weatherproof seal, which meant that it was not possible to see the interface between the new window unit and the
surrounding walls."
So we've got a good description there, and the bowing that you are describing there is what you were just talking about just now, is it?
A. Yes.
Q. Yes.

Is it right, then, that where there was the gap around the edges of the windows, once you have gone beyond the old window frame, that on the mock-up that you saw at that point there was nothing at all underneath the uPVC?
A. Yeah, that's my recollection of it, but reading again an email further on, Simon Lawrence mentions that actually when they did the mock-up they'd used some Celotex to support and to close that gap. Now, that may have been on one of the other sample windows and the one that we exposed at that time didn't have it in, and hence why the bowing was there.
Q. I see, yes.

If we could look at Mr Cole's witness statement at this point, if we go to that, \{SDP00000220/3\}, and I want to look at paragraph 14 on that page and what he says. He says:
"I recall that discussions took place between those individuals present at the meeting (including the Rydon

## 111

employee) about how the 'bowing' could be resolved. Whilst I cannot remember who originally came up with the idea, it was suggested that the old [aluminium] window frame should be removed and that insulation board could be used to bridge the gap between the new window and the timber window surrounds to provide the support for the plastic soffit and fascia board. I cannot recall anything being discussed about the type of insulation that would be used."

So do you see that there?
A. Yes.
Q. Do you agree with Mr Cole that it was at that meeting that somebody suggested that insulation board could be used to bridge the gap and try and overcome the bowing issue?
A. Yeah, I would imagine there was half a dozen different scenarios that were discussed, but that was the one that was actually implemented.
Q. Do you think that it may have been you who made that suggestion?
A. It could have been, but I can't remember.
Q. Okay.

In his oral evidence to the Inquiry, Mr Lawrence suggested that this was a decision taken jointly by Rydon and SD Plastering. Would you agree with that?
A. It would certainly have been discussed. No one person takes a decision on their own; it would have been between everybody. But, again, what we would have done was we would have perhaps put an idea forward to be signed off by everybody else.
Q. He agreed with the suggestion that the solution for remedying this issue was a bit of trial and error. He said that on \{Day25/40:23\} and \{Day25/58:4\}. Would you agree that remedying that issue did involve a bit of trial and error?
A. Possibly, but some of that trial and error had already occurred by doing the actual first sample of it. So whoever had carried out the first one, they may have carried out two or three different scenarios as well.
Q. Yes.
A. So that trial and error he refers to might not just be to us, it may be to whoever carried out the original sample.
Q. As far as you were concerned, was there then a bit of a process of trial and error after this point in terms of doing another mock-up to see --
A. No, I don't recall that it was, I think pretty much it was -- I think the first time that they tried this out by supporting the cills at the back by putting the insulation board in there under compression, it was

113
giving the result that they wanted.
Q. I see. And when was that carried out?
A. That I'm unsure about, but it is listed somewhere because I think there's also an email from Daniel Osgood talking about the show flat, trying to get it ready and then falling behind.
Q. Yes.
A. So it would have been a period between -- before that,
but I couldn't give you the exact date.
Q. I think we might be coming on to that.
A. Okay.
Q. In his evidence to the Inquiry, Mr Lawrence said that the choice of a solid insulation board was discussed at this point. Do you remember that?
A. I don't, but possibly.
Q. Was there any discussion or consideration at that meeting about how filling the gaps between the new windows and the old timber window surrounds in that manner might affect the compartmentation of the flat in terms of fire safety?
A. No.
Q. Was fire safety discussed at all?
A. No.
Q. Were you told anything at this point about what might be around the windows already as installed by Harley?
A. No, there was no discussion over the strategy .
Q. I think you said in your statement that -- or we saw that you couldn't see beyond the EPDM membrane because that had been put around. Does that mean that you didn't know what was beyond that membrane in terms of the window surrounds?
A. No, we wouldn't have tried to look at the façades on the outside and trying to piece it all together. We were dealing with the bit that we had been allocated, which was to provide an aesthetic finish to those reveals.
Q. Yes.

Now, we looked at Mr O'Connor's email about Mark Dixon going to site in February 2015. Do you think it's possible that this meeting at the pilot flat we've just discussed actually did happen in around February 2015 ?
A. It could have done, but it may have also been that I hadn't gone there specifically to deal with that. It may well be I had gone there to deal with all the other things I dealt with on a daily basis, and then I was asked to just go and inspect it and give my thoughts on it.
Q. In that email, Mr Lawrence said that you discussed ideas on design and how to improve things, that that was a discussion had with you.

115

Would you agree that you were discussing with the Rydon people ideas on design and how to improve things?
A. Well, I can't recollect it, but I'm certainly accused many times of imposing my opinion on people, yeah.
Q. I see.

If we can then turn to paragraph 19 of your witness statement, so that's on page 4 \{SDP00000196/4\}, following the story through, you say:
"One of the Management Team instructed SDPL to produce an alternative configuration for finishing off the window surrounds that (i) was more aesthetically pleasing than the example window surround; (ii) was easier to install than the example window surround; and ( iii ) would remedy the 'bowing' in the example window surround ..."

You describe that as "the Works".
A. Yes.
Q. When you are referring there to the management team, do you mean Rydon asked SDP to produce the alternative configuration?
A. I do, yes.
Q. Can you help us as to what exactly Rydon asked you to do in practice?
A. That was the criteria they put in front of me.
Q. And they actually gave those three criteria , did they?
A. It would be verbally, yeah. It would have been learnt
from what we'd already seen in the show flat, that it
was difficult to install, it was --
Q. Yes.
A. -- not a quick process, it needed to affect the
residents as less as possible but leave them with
something that was pleasing to the eye and wasn't going
to give them a load of stress, keep staring at every day
after that point.
Q. When you say it would have been done verbally, can you
recall who you had that conversation with?
A. No.
Q. Did you get the impression at this time that Rydon was
leaving it to SDP to come up with a design solution for
the window surrounds?
A. No, I think it was certainly a collaboration between the
two of us. I think with all of these things is that any
management team such as Rydon or every main contractor
will call on the skills and input from other people
around them to try and get together as many ideas as
possible.
Q. Did you get any specific guidance from Rydon about how
they wanted the design to end up?
A. No more than what's written on the screen.
Q. Were you ever provided with any information by Rydon

117
when doing this alternative configuration? For example, were you ever given any specification for materials that should be used with it?
A. No.
Q. Now, looking back at paragraph 16 of your statement at this point on page 4 \{SDP00000196/4\}, you say this:
"As the new windows were installed beyond the original building line, a gap was created between the newly installed windows and the old timber window surrounds (which remained in situ following the removal of the old [aluminium] framed windows). The width of the gap was approximately $60 \mathrm{~mm}-100 \mathrm{~mm}$; that depth varying slightly between the units."

Do you see that there?
A. Yes.
Q. Did that fact, that the windows were installed significantly beyond the building line, leaving that gap, ever give you any cause for concern about the design of the window surrounds?
A. No, it hadn't -- I hadn't looked at it and gone, "Well, that's going to be a problem", apart from bridging it, because the criteria that we had been given was literally to make this an aesthetic finish, bridge that gap, make sure it stays in place.
Q. Did you ever think about whether that gap might create
a vulnerability for fire around the windows?
A. Not at the time.
Q. Had you ever worked on any similar refurbishment project for windows where windows have been installed beyond the building line and you have got to try and bridge a gap?
A. No.
Q. So this was a unique problem, was it, that you came up against?
A. It was unique for us, but it wasn't necessarily unique for Rydons.
Q. Had you ever previously been involved in any window refurbishment work in a high-rise residential building?
A. I can't recollect one. I think the only one that I'd done with Rydons was for Laker Court, which was one of the early ones where I was assistant site manager -actually, I was a senior site manager at that point, but I think we refurbed those windows. I don't believe -they might have been replaced, yeah, but they stayed on the same building line, so it wouldn't have become apparent.
Q. That building, Laker Court, was that a high-rise building?
A. I want to say 11 storeys.
Q. 11 storeys, okay.

Were you or Mr Cole ever provided with any design

## 119

drawings showing how the windows should be configured in these internal window reveals?
A. No, and again, if we had been, then that's what would have been replicated on site.
Q. You describe in your statement these works to be cosmetic, you say that at paragraph 13 of your statement, and at paragraph 20 you say that the works were of a purely decorative nature.

Was that your view when you were being asked to tender for these works, that this work to the interior of the windows was purely cosmetic and decorative?
A. It was to create the finish line on the inside of the new window install.
Q. Perhaps before we break if we can just look at an email. This is \{RYD00040428\}. This is an email from Adam Marriott, if we look at the top of the page, to you dated 1 May 2015, cc'ing in Simon O'Connor. He says:
"Morning Mark,
"Further to your telephone conversation with Steve yesterday please can we look to agree a cost for the window surround package today.
"I believe your carpenter is on site this morning to agree with Simon O'Connor an easier method of installation. Once installed please call to discuss further."
Do you see that there?
A. Yes.
Q. Now, it begins with, "Further to your conversation with Steve yesterday". Was that a conversation with Steve Blake?
A. Correct.
Q. Can you recall what was said in that conversation?
A. No. I think it would have been no more than Steve just saying, "Can you try and help us out here, can you try and make this work for us".
Q. Then there is reference to your carpenter being on site to agree with Simon O'Connor an easier method of installation. Who was that carpenter?
A. I can't recollect.
Q. So that wouldn't have been Mr Cole?
A. No, it wouldn't have been Andy.
MS GRANGE: Mr Chairman, I think that's a good moment for a break.
SIR MARTIN MOORE-BICK: Is it suitable?
MS GRANGE: Yes, it is .
SIR MARTIN MOORE-BICK: Thank you very much.
Well, Mr Dixon, we're going to have a break now so we can all get some lunch. We will come back at 2 o’clock, please.
THE WITNESS: Yep.

121
SIR MARTIN MOORE-BICK: While you are out of the room,
I have to ask you, please don't talk to anyone about your evidence or anything relating to it. All right?

Would you like to go with the usher, then, please. (Pause)
MS GRANGE: Thank you.
SIR MARTIN MOORE-BICK: Thank you.
2 o'clock, then, please. Thank you.
( 1.01 pm )
(The short adjournment)
( 2.00 pm )
SIR MARTIN MOORE-BICK: Right, Mr Dixon, ready to carry on?
THE WITNESS: Yes, yeah.
SIR MARTIN MOORE-BICK: Good. Thank you.
Yes, Ms Grange.
MS GRANGE: Yes, thank you.
Just to pick up on one point from this morning's evidence, you said that when you were considering with Rydon how to outcome the problem of the bowing, there might have been a number of scenarios. I think you said there might have been half a dozen other scenarios you thought about.

Can you help us as to what those other scenarios in general terms were?
A. I'm not even sure we trialled any others in the end.

I think what we did was we probably thought through it logically, we might have packed some plasterboard on the back or some ply packers across or all of those, and I think the issue might have been we couldn't get them under compression enough to stay in place, hence why the Celotex was used.
Q. I see, yes. That's helpful.

Turning on now and staying with the story chronologically, we're turning now to your quotations that you provided and the method statements. If we can turn up \{RYD00040686\}, we can see this is an email from you to Mr Marriott at Rydon, copying in Simon O'Connor and Simon Lawrence, on 6 May 2015, and the subject is "price for window surrounds". You say:
"Dear all please find attached the quotation for carrying out the window surrounds at Grenfell, can I ask you to check the numbers as I am unsure about the three bed units as we have never been in one and the drawings are not clear. Adam I know this is nowhere near your allowance but I have looked at this for a few hours now and believe that even our cost might be tight, the team I was hoping to use wants considerably more money than I have allowed due to the risk element so I have built a team using mostly employees to tackle this which gives me more flexibility if we have access issues on site ."

123

## You see that there?

A. Yes.
Q. So just picking up on a few points from that paragraph, you seem to know that the price you're quoting here is nowhere near the allowance that Rydon have allowed for. Does that mean that Rydon had told you how much they'd allowed for in their budget?
A. I think it would have been discussed at some point to say, "We've got a budget set at this ". They'll give you an indication of where it's going because a lot of the time, if there is a case that that happens, some people just turn around and say, "I'm not interested in doing it, I can't get anywhere near those figures ". We saw the process through because we was asked to, so we produced the price anyway.
Q. Yes, yes. And can you help us, you might not be able to remember specific figures, but by how much approximately did it exceed Rydon's budget? Was it by a significant amount?
A. I think so, but it's probably more to the point that I've seen documents since then that bandied a figure about of between 90 and something thousand pounds was their budget, and I think we was at 132.
Q. Right, yeah.
A. Round about that figure, so there was a significant
difference.
Q. Thank you, that's helpful.

So if we can turn to that quotation that you attached to this email, this is \{RYD00088957\}. Did you put this quotation together yourself?
A. I did.
Q. We can see on the left -hand side there's a column for "Description of item".
A. Yeah.
Q. The first item is "remove existing frame", so is that remove the existing wooden window frame?
A. I think it was the inner frames. I think, if I remember rightly, the windows were built -- you had an outer aluminium frame and inside of that were two other windows that sit in there, so you kind of dismantle the frame.
Q. Right.
A. So I think, to my recollection, that part of the frame still remained, it was fixed in place, and that gave us something to actually fit the board up against, against the new window frame and the old window frame.
Q. So it says there:
"remove existing frame place plasterboard backer to gain margin ..."

So what's that bit?
125
A. At that point in time, this was -- when this was done --
Q. This is 6 May.
A. Yeah, when this was done, I'm saying to them I need the flexibility just in case I've got a different scenario, so I might cut pieces of plasterboard in to bridge the gap and put it on that or we may get back to the insulation. So I think that just gave me the flexibility to do one or the other.
Q. I see. So you have written in that top box "place plasterboard backer to gain margin and close cavity", and then in the row that's filled in below that, row 5 , you've got, "place celotex insulation to reveals", and should that be "base of window"?
A. It should be, yes.
Q. So are you saying that what you were proposing in this quote was either one of those options, either plasterboard or Celotex, or are you saying that it was both?
A. No, no, no, I think it gave me the flexibility to move in and about -- of either one of those options. As it was then, we didn't use the plasterboard at all, and the original sample never used the plasterboard, and I think actually in my statement that was offered as well, it's highlighted in there that that comment there should have been taken out of the second quote.
Q. Yes, I was going to come to that later.
A. Yeah.
Q. So I understand that.

But just thinking back to when you put this quote together, were you contemplating that you might use plasterboard backer and some Celotex insulation?
A. Or a combination of both.
Q. Yes.
A. Yeah.
Q. Yes.

We can see you have put "place celotex insulation" there.
A. Yeah.
Q. What Celotex insulation did you have in mind when you wrote this?
A. It was no more than a 25 -mil Celotex. It was more to do with the thickness. We only had a very small margin to work with to actually be able to place something in there, and it was there -- the Celotex was there because it could be put under compression, but it could also act as a support, as well as giving some sort of thermal benefit as well.
Q. I see, yes. So would there have been a particular Celotex product that had the right thickness that you had in mind?

127
A. The $25-\mathrm{mil}$, yes, I think it's the TP10 or -- it was a very basic one. Its criteria was nothing more than for us to have a backing to the board to stop this bowing.
Q. Yes, that's helpful.

Again, did this quote envisage that you would be placing the plasterboard/Celotex insulation all the way around the window, so not just at cill level but also jambs and head?
A. Yeah, you're going to have to do that. The problem -the gap was the same, so the detail would have had to have been the same.
Q. Yes, I follow.

Then if we can turn to another document I think you provided at this time, this is a risk assessment and method statement. This is \{SDP00000198\}. So I think the date of this document is 19 May 2015. Yes, we see that -- actually, that's the start date it's got on here, sorry, and the issue date. So does that mean this would have been issued then, 19 May?
A. Normally issued -- well, normally issued a week before but sometimes a few days before, depending on how much pressure we're under.
Q. Had Rydon told you that they wanted a risk assessment and method statement from you?

129
"Board is to be cut and stuck using adhesive and all gaps made good with mastic."

So that's about how you're going to stick that board around the edge; yes?
A. Yep.
Q. Then you go on to say:
"Operatives must make all cuts within communal areas ..."

Can you help us as to why there isn't any reference here in this document to Celotex insulation or any other form of insulation board being placed in the cavities around the window frames?
A. It's a pretty generic document. That's the short of it. These are -- when we do these now, these are vastly different to how they looked $X$ amount of years ago, so there's a lot more detail in them now.
Q. And that's why there's no reference to plasterboard either?
A. There is no other reason than that.
Q. I see.

Can you help as to why the risk assessment and method statement doesn't make any mention of the fire resistance or fire performance of any of the materials that were proposed for use around the windows?
A. No more reason than that we wasn't asked to provide
anything that had a certain resistance or offered a certain compartmentation line or anything like that. There was no guidance in saying: these are the things you can't use or these are the things you have to use.
Q. Yes.
A. I think with all of this, whether it be the Celotex in the reveals or the plastic or anything else, there was ample opportunity to inspect every stage of this --
Q. Yes.
A. -- and to highlight that if there was something that didn't quite fit or wasn't up to the expectation of everybody, to stop, start again and then prescribe something else as a solution.
Q. In your experience, would it be usual not to get any sort of specification for the products being used from a design and build contractor like Rydon?
A. You would normally expect to see more detail than this . Q. Yes.

At around this time, did you or anyone else at SDP discuss the size and shape of the gaps with Rydon in terms of --
A. Not particularly .
Q. -- their vulnerability to fire spread or anything like that?
A. No.

## 131

Q. Was this risk assessment and method statement provided to the installation team for them to work from?
A. Yes.
Q. You have talked a few times about potentially applying compression to the insulation. Can you just explain what that process would involve? Is it just pressing down on the uPVC, to push down, or is it --
A. No, quite the opposite. So what you have is you've got the new window frame and you've got the existing inner line, whether that be the window frame or the back of the board, yeah?
Q. Yes.
A. So what we would try and do is cut the insulation that was oversized for the opening so that when you push it in, you have to force the other side in --
Q. Yes.
A. -- which then in turn keeps it under compression.
Q. I see, yes, I understand.

Were operatives specifically informed that they had to do it under compression, to fit it that way?
A. Well, it wouldn't have wanted to stay in place otherwise, we'd have had the same problem. It would have then tilted further into the cavity and we would have ended up with the same problem we had before.
Q. Yes.

Just for completeness at this stage, and we will come back to this later, what we know is that, following your first quotation on 6 May, we can see a revised quotation was then sent on 29 May 2015. If we can just pull that up now, \{SDP00000189\}. If we blow that up, this is the revised quotation, and is it right that this revised quotation included for some boxing-in work adjacent to the front doors of the flats --
A. Yes.
Q. -- but it didn't change the scope or sequence of work to the window surrounds?
A. Correct.
Q. Yes.

Can I check, was SDP ever provided with any drawings, either from the architect or from Rydon, to assist with carrying out these window surround works?
A. Not to my knowledge, and again, if there had been a set of drawings and it showed something different, that's what would have been constructed on site, and even if there had been an error in one, there wouldn't have been an error in every flat.
Q. So you say:
"Not to my knowledge, and again, if there had been a set of drawings and it showed something different, that's what would have been constructed ..."

133
Were you ever aware of a set of drawings which addressed the way in which these window surrounds should be constructed?
A. No.
Q. Did you or anyone else at SDP to your knowledge ever have a discussion about the design of these internal window surrounds with Studio E, the architects on the project?
A. Not to my knowledge.
Q. Were you even aware that Studio E were involved when you were carrying out this work?
A. Yes.
Q. Did you ever come across Studio E as part of your other work on the project?
A. There may have been some correspondence somewhere along the line, but normally the idea is that if I want to correspond with any form of design issue, my line is into Rydons and then Rydons back out again to the architect, and then the architect back in and back out to me again.
Q. Yes.
A. We don't go around the back of that.
Q. But to your knowledge, you don't think you had any discussions at any stage with Studio E?
A. If they were, they may have been on site, I may have met
two or three of them, I have no idea, but not to my knowledge.
Q. What about with Harley? We know they were doing the works on the exterior, including applying the uPVC membrane around the windows; did you ever have any discussions with them about the interface between your work and their work?
A. No. I think there was at the very early stages just a bit of sequencing when they took out the glass from the windows, but that was with one of their team supervisors, but no more than that.
Q. Did you ever produce any drawings yourselves of the work that was going to be carried out to these window surrounds?
A. No, I don't believe so.
Q. Just a little bit more on the contractual arrangement between you and Rydon.

It's correct, isn't it, that prior to taking on the work to refurbish the window surrounds, SD Plastering was awarded a contract by Rydon to undertake the dry-lining and plastering works at Grenfell Tower?
A. Yes.
Q. If we can turn to \{RYD00031801\}, this is an email of 17 February 2015 from Adam Marriott to you at SD Plastering, copying in a number of others at Rydon,

135
and its subject is "Grenfell Tower - Drylining Package", and he says:
"Mark, Simon,
"Further to your quotation dated 14th November 2015 and our subsequent discussions, we attach our letter of intent for the Drylining Package required at Grenfell Tower ..."

Do you think that's a mistake in the date there? He is saying 14 November 2015. Do you think he perhaps meant 2014 for that, given that this is an email in February 2015?
A. I'm unsure.
Q. Okay.

Now, what we can see here is that there is a letter of intent sent for the dry-lining package, and a number of other documents are sent, including Rydon's standard terms and conditions. They're at appendix B and they're one of the attachments.

Now, if we can turn up those standard terms and conditions, this is at \{RYD00031806\}. So these are their standard terms and conditions, it was appendix B that you were sent.

Do you recognise this document?
A. As much from my time at Rydons as I do from the actual -- this part of the --


137
any of the standards and everything else, not necessarily knowing what every single standard is. The fallback position for that is that you have a design team in place, you have a management team in place, you have Building Control in place, so there's all these falls that if someone does make a mistake or doesn't quite understand what it should be, this can be picked up by another party.
Q. I see. So I think what you're explaining there is it would have been implicit that your work had to comply with any relevant standards; is that right?
A. You would have thought that any work that anybody does, if there is a standard for it, that's the compliance.
Q. But did you actually ever think about and apply your mind to whether these standard terms and conditions also applied to the work you were doing to the window surrounds?
A. Look, at the end of the day, they're always in the back of your mind that there are standard conditions that you need to work to, so if this was -- if that would have been an instruction, it would have still fallen under the main contract, so these conditions would have still been part of that.
Q. I see. That was your understanding at the time?
A. I think that's my understanding now, and I think the
same for everything. Every element of work you do, if there is a BS for it, although it might not be written down, we've all got a duty of care to try to comply to it.
Q. In Mr David Hughes' witness statement, he says that SD Plastering also did a large number of additional works, such as screeding, firestopping and fireproofing.
A. Yes.
Q. For the transcript, that's in his statement \{RYD00094213/9\}, paragraph 44.

Did SD Plastering undertake any firestopping and fireproofing work at Grenfell Tower?
A. Yes, on the lower levels .
Q. Can you just explain what that involved at the lower levels?
A. Penetrations, internal penetrations. So between walls, so when we created a wall, if someone penetrated a wall at the top, we would then fill it with the appropriate mastic and that to make sure that that line was reinstated.
Q. In terms of the individuals that carried out that work, would they have been the same individuals that were then used for the window surrounds?
A. Not necessarily, no.
Q. No, okay.

139
If we can just turn to an email, this is
\{RYD00064707\}. I want to go down to the third email in the chain, that's at the bottom of that page. It 's an email from Jason North, who is one of the Rydon site managers, to you, copying in David Hughes about Grenfell Tower. If we look in the first line, second sentence, he says:
"Hope all is well with yourself. Do you think you can stretch to supplying our good selves with the following ."

Then he says:
"Somebody qualified for fire stopping (this is to include all penetrations ... removal and replacing of panels ..."

When he says there "someone qualified for fire stopping", what did you understand him to mean by that?
A. Experienced. Someone who's got some sort of experience in it. Doesn't mean necessarily qualified. At that stage in time, most people working within fireproofing were someone that had actually been on one of the product courses, so you understand how to actually install the product.
Q. Yes.
A. And that's the kind of qualified. Since then, obviously, things have changed quite dramatically, and
"qualified" means something very, very different.
Q. When you were carrying out the window reveal work, were any of your workmen required to have particular qualifications or training in terms of the work that was being done?
A. No, and again, it was seen as a -- nothing more than a cosmetic detail, so the skill base for that is slightly different: it's someone who can install the elements that went in. They didn't need to be qualified as a fire technician, they didn't need to be qualified as a surveyor or anything else, that's the limitation of that task.
Q. Yes, okay.

Now, I just want to come on to some more detail about the choice of materials used in the window surrounds.

Simon Lawrence said in his oral evidence to the Inquiry that he didn't know who had selected the insulation materials to be used, but he thought that you would have gone away, looked at your supply chain to find out what rigid insulation would fit in the thickness that was needed, before choosing where to get the materials from. That was his evidence.

Would you agree with that, that that's what happened in practice?
A. Erm, yeah, there would have been quite a few discussions about that material, and certainly we would have had a sample on site at some point, so it may be that we've gone away and looked at availability, but I think there is also an email from Simon prior to this concerning the sample window that he actually mentions that the other team had fitted Celotex.
Q. Right.
A. So there is a reference already to that much earlier on.
Q. So is your evidence that the selection of materials was based on agreement between Rydon and SDP as to what the appropriate rigid insulation board would be for those locations?
A. Yeah. I don't think there was anything to say that the materials that were used on site and put in place for people to inspect, there was nothing to say that that wasn't the case, not to use them.
Q. We know that the insulation used by SDP in the window surrounds was either 25-millimetre Celotex TB4000 insulation boards or 25 -millimetre Kingspan Thermapitch TP10 insulation boards. Is that correct?
A. I would suggest that's correct.
Q. Now, at the time of the Grenfell project, were you generally aware of the requirements in the Building Regulations?
A. Not in particular on this, because we didn't take on a design element of this, so we'd not done anything at this height.
Q. Yes.
A. The regulations within refurb and new-build, they're very different and they're very open to interpretation, that's one of the biggest problems.
Q. Yes.
A. So what we was guided by was saying, "Look, this is what we're going to do, can someone give us formal agreement that we can continue".
Q. Yes.
A. And that's exactly how it was put together.
Q. So you were looking to others on the project to tell you if there were any compliance issues with what you were proposing?
A. The guidance on refurbishment is, as I say, quite hazy in some areas, so the whole point of that is that you put it through a chain of command, including the design teams, the client, Building Control, and my understanding is that everybody had looked at that, everybody had agreed that and said we could proceed on that basis.
Q. When you are saying your understanding is that everybody had looked at that, are you saying that everybody had

143
seen precisely which insulation products you were proposing to use, the Celotex and the Kingspan, and your understanding was that all of those people in that chain were happy with that?
A. My understanding is that everybody knew what we was doing.
Q. And you have referred there to the design team; did you ever have a discussion with Studio E about the specific insulation products?
A. No.
Q. Building Control you also referred to; would Building Control have been made aware of the products you were using in that location?
A. I can only assume so.
Q. But you don't have any direct evidence of that in terms of --
A. No.
Q. You weren't on site when there was a Building Control visit?
A. No, but only on the basis that we was allowed to continue.
Q. I see, yes. We will come back to that topic, I think, a bit later.

Were you aware of any of the guidance in Approved Document B on fire safety at this time?
A. Not at this time.
Q. Were you aware that there was some specific guidance for buildings over 18 metres in terms of the types of materials that could be used on them?
A. In a new-build situation, yes, but not in a refurb situation.
Q. So was it your understanding that if you were refurbing a building, an existing building, if that was a tall building, there wasn't any particular requirements surrounding that?
A. No, my understanding was that there was a design team in place, Building Control in place --
Q. Yes.
A. -- to ensure that if there was a regulation in there or if it was open to interpretation, that was brought to site, and then if there had been anything within the detailing that they wasn't happy with, that it could be stopped, rectified, before it continued up through the building.
Q. Yes, but I'm asking you about your knowledge. Did you have any knowledge at the time that there might be special rules for a refurb if that building was over 18 metres?
A. No, I didn't.
Q. Were you aware that that guidance provided that any

$$
145
$$

insulation materials used in an external wall were required to be of limited combustibility?
A. No.
Q. Had you ever heard of the term "limited combustibility" at the time of the Grenfell project?
A. Yes.
Q. In what context had you heard about that?
A. It would just have rose up in countless conversations, whether it be in a technical, it could have been -- it was normally to do with insulation anyway, yeah?
Q. Yes.
A. And it might have been on a previous scheme somewhere in a new-build situation rather than a refurb, because even in a lot of new-builds, they were still installing phenolic insulation on the outside of buildings, which is now something that's not done anymore. So that term would have probably come from a new-build rather than a refurb.
Q. You're quite sure that was the term "limited combustibility", are you?
A. I can't be certain, but I've certainly heard it before and I'd certainly heard it quite a while ago
Q. If you had heard that term at the time, what would you have understood that to mean?
A. That means whatever product is put in there should have
some sort of fire rating and doesn't add to the fire
Q. Did you think there was any guidance which might apply in terms of fire safety to the internal works that you were doing to the windows at Grenfell Tower?
A. What I'd actually assumed is that the process had already been done, yeah, that the strategy was achieved, which means that everybody knew exactly what was required --
Q. Yes.
A. -- where it was required, and the safety to ensure that nothing is missed is that a site management team --
Q. Yes.
A. -- a Building Control officer and Studio E had the ability to sign those off and say, "We're happy with what's being done".
Q. Yes.
A. The overall strategy is the key.
Q. You say there that what you assumed is that the process had already been done, but I think you agreed that it was you that first suggested the Celotex; is that right?
A. What I actually said was Simon O'Connor had already --

Simon Lawrence had already identified in an earlier email that Celotex had been placed by somebody else. We probably replicated that.
Q. I see. And the Kingspan product, was that something

## 147

that you chose yourself?
A. I think the Kingspan only came about because there was no availability of Celotex at the time.
Q. Yes.
A. But they perform almost the same.
Q. But did you take the decision to swap the Kingspan in because you thought it was a like-for-like product?
A. Oh, I think probably Andy would have contacted me at some point and said, "There's no Celotex, can I get Kingspan?" and I would have said yes.
Q. Who is the Andy you're referring to?
A. Andy Cole.
Q. Yes.

Were you aware at the time that there was guidance, including in Approved Document B, that provided that cavity barriers had to be installed around window openings to prevent the spread of fire from a compartment into any external wall cavity?
A. No.
Q. Had you ever been involved in a project where cavity barriers had been installed around windows, or other fireproofing around windows?
A. In a new-build situation, yes.
Q. And what was that new-build situation, what kind of --
A. It was a block of flats . It was six storeys high, and
we installed the barriers on the outside as well. So as part of our works we would install the insulation, the barriers round the windows. But, again, that is a new-build situation, not a refurb situation.
Q. And just help us, in that new-build situation, what were the barriers that you were installing around the windows? Were they cavity barriers?
A. They were vented barriers. So these were actually a product by Firetherm, so it's their vented system.
Q. Did you ever consider the fire performance of the materials that you were installing around the windows?
A. No, I didn't, no.
Q. Did you ever consider how the window surrounds at Grenfell Tower would behave if there was a fire in the compartment?
A. No.
Q. Did it ever occur to you that there might be a need to be some form of fire barrier or fireproofing around the windows?
A. Yeah, internally, no, the directive was not to place one on the internals, so I guess you can assume that somewhere on the outside of the building the strategy was already in place to deal with any fires on the outside.
Q. I see. That was an assumption you made at the time, was
it?
A. It wasn't one I needed to make at the time because my concern was the inside, not the outside.
Q. Yes. And did you think someone else was responsible for that, for that fireproofing on the outside of the building?
A. We had no works on the outside of the building.
Q. Did you ever check yourself whether there were any cavity barriers around the windows during the time that you were involved in the internal window reveal work?
A. No, there was no requirement on me to do that.
Q. Did you ever consider having a meeting with Harley to discuss the interface between your work and their work?
A. No, because that's starting to intimate that I'm taking on the design responsibility for this. That wasn't the case at all. This was a series of works that were directed towards us with a series of benchmarks to hit, which was it needed to be in a pre-finished product, it needed to be as quick as we can to cause as less disruption to the residents.
Q. Did you in fact know at the time that there were no cavity barriers immediately around the windows?
A. No.
Q. Had you known that there weren't any such cavity barriers around the windows, do you think you
would have done anything differently in terms of SDP's work?
A. If I'd known what the consequences and the outcome were, would I have done something differently? Everybody would have done something differently.
Q. I understand that, but if you had known at the time -suppose in that very first meeting at the show flat, Simon Lawrence had said to you while you were chatting,
"By the way, there aren't any cavity barriers around the windows, we've got cavity barriers but they're further out, away from the window", do you think you would have raised any concerns about that at the time?
A. Possibly, yeah, I may have said to them, "Oh, this is different to a new-build situation ", but as I keep saying, the difference between new-build and refurb is there is a different criteria for this, and what you hope is that someone above my pay grade in the design element is looking at the strategy and saying, "Right, okay, there's no barriers around the windows, but because we're compartmented between floors and on the 60-minute walls, the risk is reduced".
Q. I see. Yes.

Mr Cole says at paragraph 23 of his witness statement -- I think I can just read out what he says, \{SDP00000220/4\} -- says:

151
"As far as I'm aware, SDPL were never instructed that the materials used in the completion of the Works should have been of limited combustibility."

Do you agree with that?
A. Yes.
Q. How often had SDP used the Celotex TB4000 or the Kingspan Thermapitch product previously?
A. In that situation?
Q. Yes.
A. Never.
Q. Never.

Did you or anyone else on behalf of SDP ever seek any information about the fire performance of those insulation products?
A. No, we didn't look at the datasheets.
Q. Did you or anyone else to your knowledge at SDP ever ask Rydon or any other party any questions about the suitability of those particular products in this application in terms of compliance with the Building Regulations?
A. Only in the fact that we created a sample using the same materials, which hopefully would have triggered any conversations in non- suitability .
Q. When you created that sample, how would those looking at the sample have known that it was that form of
insulation you were using?
A. It's written on the face of it.
Q. So you would have gone on the fact that it's on the branding; yes?
A. Yeah, I believe so. It depends where you cut the board, obviously.
Q. Yes.
A. But, again, if there was a trigger for anybody to say,
"Right, okay, this detail is not going to work, it needs to achieve this ", then it's somewhere in that criteria. As I said, making a mistake once is a mistake; making it throughout the building, that's a very different thing, with so many people looking at it.
Q. Did you ever give any matters of compliance with Building Regulations or other industry guidance any consideration in terms of these internal works?
A. No, because I had assumed that this had already been done before we got there. Everybody else had already looked at it and said: this is the solution.
Q. Did you know at the time that the Celotex product was a European classification F product, class F?
A. No.
Q. Would that have meant anything to you if you had been made aware of that?
A. Based on what I know now, yes.

153
Q. But back then --
A. It's not limited combustibility.
Q. -- if one of your operatives had said, "By the way, I've had a look on the product sheet and it's class F fire performance", would that have meant anything to you?
A. That would have meant that it didn't perform particularly well against fire.
Q. Right. So did you know in general terms about the European classification system from A1, A2, down to F?
A. I'm sure I would have picked up on it at some point, but again, on that particular product, in that particular solution -- they do sell it in this country.
Q. Yes.
A. Yes, which by that alone means that it can be used in certain situations.
Q. But it didn't ever occur to you that because this was a tall building, there might be a need to just check whether that was appropriate?
A. No, because we made it obvious to everybody what we was doing and what we was using.
Q. Yes.
A. Ultimately what I wanted and what should happen is there are several other people in this chain that can stop that process if they're not satisfied with it.
Q. Did you know that the Kingspan product was a class E

Euro class product?
A. No.
Q. Were you aware that this was a combustible insulation material?
A. Not particularly, no.
Q. Now, Mr Lawrence said in his oral evidence to
the Inquiry that there was no formal approval process
for the use of the two insulation products, the Celotex and the Kingspan. I think that accords with what you're saying, that there was no formal approval process, but that what you're saying is because it would have been seen in the mock-up, that was the process by which it was approved; is that correct?
A. It would've been seen and it would have been talked about. So there would have been discussions. We do a mock-up to give everybody the opportunity to comment.
Q. But you didn't ever see in a formal specification --
A. No.
Q. -- or a drawing it formally specified that this would be the Celotex or the Kingspan product?
A. No.
Q. Would it be more usual at the time for a design and build contractor to insist on their own specification for a product like this, ie to have the specification imposed on you rather than ...?

155
A. I guess it comes down to where the detail's being used and the importance of the detail.
Q. At the time, would you have preferred to have had more guidance on what to use in that location from Rydon?
A. In hindsight, yes, I would have preferred to have every piece of guidance in front of us.
Q. Yes.

Now, at paragraph 32.2 of your witness statement \{SDP00000196/7\}, you say that the Kingspan Thermapitch boards were used interchangeably with the Celotex boards depending on their availability from your suppliers.

Can you recall what quantities of the Kingspan product were used, approximately, in comparison with the Celotex?
A. No, I have no idea.
Q. Okay.

Did you ever have a discussion with Rydon where you discussed using the Kingspan in substitution for the Celotex? Did you ever have that specific discussion?
A. I can't remember if that happened, but I'm sure we would have made someone aware of it at the time, that we were changing products.
Q. If you had made someone aware, who would that have been, do you think?
A. It would have been one of the site team, it probably
wasn't done formally, saying we were swapping products Q. Yes.

So at this point I just want to take you through a few photographs so we can just orientate ourselves in the work that you did.

If we look first, this is in section 9 of Dr Lane's Phase 1 report, at \{BLAS0000009/20\} and I want to look at figure 9.13 .

If we can blow this up, what we're looking at here is we're looking at a window jamb, and we're looking at the side of the window where the window infill panel would join the window itself. Do you agree with that?
A. Yes.
Q. We can see here that I think there it's Celotex insulation, it 's got red branding on it and you can just see the end of the "Celotex" there.
A. Yeah.
Q. That insulation has been used to fill the gap between the original window infill panel and the new window infill panel. Do you see that there?
A. It's there to provide support to the plastic.
Q. We can see that what's at the bottom in yellow is a deformed uPVC window surround --
A. Yeah.
Q. -- which has just peeled back and melted and fallen

157
away, showing the board behind; is that correct?
A. Yes.
Q. That was work that your operatives did on site, wasn't it?
A. It was, yes.
Q. We can see another picture of this if we go to Mr Hyett's Phase 2 report, \{PHYR0000029/20\}. I want to look at figures 4.11 and 4.12.

So I think we're looking at the other side of that window arrangement, back down towards where the window infill panels are. We can see the new white window infill panel, can't we, in that gap? Do you see that there?
A. Yeah.
Q. And we can see that here some of the insulation and its foil facer has fallen away.

If we look on the right-hand picture, is it right
that here we can see an example of Celotex and Kingspan being used in the same location; is that correct?
A. Yes, I can, yes.
Q. Because we have the Kingspan Thermapitch on the bottom with the green --
A. Yeah.
Q. -- and the Celotex on the top with the red.
A. And you're looking at the rear of that.
Q. Yes.
A. Yeah.
Q. And again, that's work that your operatives would have done --
A. Yes.
Q. -- put those boards in place?
A. Yep.
Q. Were they under compression when they were going in at that location on the sides of the windows? Do you cut the insulation so it's too big and then squeeze it into that gap?
A. Yeah, it doesn't have to be precise as long as it 's got connection at some point. Originally it could have been that we didn't fill the whole of that, that we just used blocks of it to support it.
Q. Yes, yes.
A. But it was easier to put this in, and actually it assisted with the thermal performance.
Q. Yes, yes.

Is it right that the insulation was stuck to the underside of the uPVC? Was there an adhesive used?
A. The uPVC was stuck to the insulation, yes.
Q. Right. So on site you would put the glue, the adhesive, on to the uPVC, would you?
A. I think so, yes.

159

## Q. And then put it in --

A. Yes.
Q. -- and it would just stick to the boards?
A. Yes.
Q. That's helpful.

Let's look at the window head next. If we can go to \{BLAS0000009/6\}, and I want to look at figure 9.3, so if we can zoom in there.

I think what we're seeing here at the top of the page is the original timber window reveal linings which were left in place; is that correct?
A. Yeah.
Q. And then because the windows have been moved out, we've then got a gap at the head, and it's in that location, is that right, that the insulation has been compressed and pushed into that gap?
A. To support, yeah, the rear of the plastic board.
Q. So the gap didn't go all the way across; you had some support from the original timber window reveals?
A. Correct.
Q. But you had gaps beyond that?
A. Which means -- and where this came about was the fact that on the lower cill section, if you didn't try and fill in the back with some sort of rigid material, you was going to be able to push them down, and that was the

## concern.

Q. Just to be absolutely clear, that was work at the head of the window that SD Plastering did; yes?
A. Yes, because it also shows the steel angle above, which appeared above and below the windows.
Q. Yes.
A. Which was fitted by Harley.
Q. Yes, and Dr Lane has helpfully labelled that
"Non-combustible steel angle at the window head" that runs all the way along; is that correct?
A. It certainly looks that way.
Q. Staying with the jamb, I think, if we can look at another Dr Lane photograph, this is \{BLAS0000009/13\}, and I want to look at figure 9.9.

Now, here, am I right that what we're seeing is the interface between the side of the window and the columns?
A. Yes.
Q. Yes? And we can see the black EPDM membrane that's been applied by Harley for waterproofing purposes; yes?
A. Yeah.
Q. And then there is a gap that's been measured here. This one is approximately 120 millimetres, but we know that gap varied up the tower.
A. Yes.

## 161

Q. Were you aware of that at the time?
A. It did vary, yeah. I think I even put that in my statement, that it varied.
Q. And then at the bottom of the page she's highlighted a gap between the inside face of the window frame and the edge of the concrete cill. We can see that there.
A. $\mathrm{Mm}-\mathrm{hm}$.
Q. That's because the original concrete tapered off, didn't it?
A. It did.
Q. Away from the windows and below it.
A. Yeah.
Q. So we've got this gap in that location. And is that the gap where you applied the insulation board?
A. Yes, but it wouldn't have filled that gap at that angle; it would have filled the gap straight across. So in fact what it would have done is closed that gap off.
Q. So there would still be a void underneath it, a triangle-shaped void --
A. Yeah.
Q. -- but you're capping off the top --
A. Yes.
Q. -- before putting the uPVC on top. Yes.

That gap there that she's highlighted in red, the unfilled gap between the edge of the column and the
window support bracket, was anything ever done in that gap there?
A. Not to my knowledge.
Q. Yes.

Now, if we can look at, on the same page,
figure 9.10. So there I think we're looking up to the head of the window. We've looked down and now we're looking up; is that right?
A. I believe that's showing you -- yeah, it's the reveal --
Q. Yes.
A. -- on the right-hand side and the head.
Q. This is helpful because we can see the old timber window frames, is that right, on the right-hand side?
A. I think you can see about there, yeah.
Q. Then at the cill, if we look finally at the cill position, if we can go to \{BLAS0000009/5\} and look at figure 9.2. So if we can zoom in on that a little bit more, here we can see the cill position, starting at the very bottom, we can see the original timber batons, and then we can see the original concrete window cill, is that correct, at the bottom?
A. Yes.
Q. And beyond it, that's where we then get the void where the concrete slopes off --
A. Yes.

163
Q. -- before the new window; is that right?
A. Yes.
Q. Is it that bit that was marked in yellow that was the bit that was bowing when you looked at the --
A. Correct.
Q. -- sample?
A. Yes, it was.
Q. Yes.

Again, we can see the black EPDM membrane down the side. Just to be clear, did your operatives place insulation board in that gap that's marked with yellow?
A. Yes. I believe it actually came across the top of that gap and then was wedged in up against -- what this doesn't show, if I remember rightly, there was a birch -- an existing timber surround which looks like it's been removed in this photo.
Q. Yes.
A. So I think it was actually between the rear of that existing timber frame and the existing window frame, that's where the compression happened.
Q. I see. We can see a little channel at the bottom. Is that maybe where that timber has been removed?
A. I think there is probably a baton missing somewhere through here as well, and it sat on top of that and was fixed and came out.
Q. Yes, I see. Yes.
Now, can we turn to something that was known as the NBS specification on the project. This is \{SEA00000169\}. This was prepared by Studio E Architects on the Grenfell project. It's called the NBS specification, it formed part of the employer's requirements in Rydon's contract.
Can you recall -- I' ll take you to a specific bit of it in a moment -- ever seeing any extracts from the NBS specification when you did your work?
A. It may have been more towards the dry-lining though.
Q. I see.
A. Not in line with this. So we may have the extracted pages that formed part of the dry-lining package, it may not have been the whole document, but if it had been --
Q. Yes.
A. -- we would have only focused on the elements that were associated to the dry-lining.
Q. If you had those elements that related to the dry-lining package, did it ever occur to you to ask, "Can we see anything in the NBS specification that relates to the window surrounds"?
A. No, I think we was one of the last people to cost this element of works. There had been many before us. You would like to think that there had been a series of

165
processes they have gone through, and what we was being exposed to was the remaining option.
Q. So does that mean in your view that the window surrounds were an afterthought on this project?
A. I think, reading back through the emails and remembering that the original ones were a birch surround which appeared and then a saving was taken and everything else, I don't think they were an afterthought; I think they were VE option that were designed into it.
Q. I think you just said a VE option; do you mean a value engineering option?
A. Correct, yes.
Q. So these window surrounds were the product of some value engineering because the birch was too expensive; yes?
A. That's quite well documented through some of the -Q. Yes.

Were you aware at the time that birch window surrounds had been specified by the architects?
A. No, no, that's only become apparent through reading the information that we now have.
Q. So nobody at Rydon ever said to you, "By the way, originally we were going to have birch here but we can't afford that"?
A. If they did, I didn't note it .
Q. Okay.

Can we turn within this NBS specification to page 242 \{SEA00000169/242\}, and this is the beginning of the P10 section, which is for sundry insulation and proofing work.
A. Yep.
Q. If we can look at page 243 \{SEA00000169/243\}, one page on from that, and if we look at clause 235 at the very bottom of that page, can you see there it says:
"Compressible insulation in gaps.
"Manufacturer: Rockwool Limited ..."
It says the material is mineral wool to BS EN 13162, thickness to suit application available, and then installation:
"Joints: Butted, no gaps. Cut and fight tightly between/around cladding supports.
"Fasteners: Use where necessary to retain insulation and/or prevent slumping."

Do you see that there?
A. Yes.
Q. Did you ever see this part of the NBS specification?
A. Not to my knowledge.
Q. Are you familiar with the Rockwool product that's mentioned here?
A. It mentions a brand; it doesn't mention a product.
Q. Did you know that Rockwool was a mineral wool --

167
A. It's a Rockwool.
Q. -- at the time?
A. Rockwool -- mineral wool, it's a Rockwool-based product.
Q. I see, yes. Had you heard of mineral wool based products at the time you were working on Grenfell?
A. And Rockwools, yes.
Q. Did Rydon or any other party ever suggest to you that SDP ought to consider using a mineral wool around the outside of the windows?
A. No, but secondary to that, a 25 -mil mineral wool, unfaced or faced, is not going to provide the support that you require to stop the cills from bowing. Rockwool is a very compressible, flexible product.
Q. Could you perhaps have applied a plasterboard and then some mineral wool, if necessary?
A. You could have done a multitude of things, but none of those were specified or drawn, which indicates that they didn't foresee that being the main issue of fire escaping or the compartment line.
Q. Did you know at the time that there was a difference in terms of fire performance between a mineral wool or Rockwool-type insulation and, say, a phenolic insulation or a PIR insulation board?
A. Again, depending on what brand, because obviously there were plenty on the market at the time that performed
similar, but Rockwool is an inert -- it's based around wool-- it is based around rock, it's manufactured from rock, so it's non-combustible.
Q. And when you say there were plenty on the market at the time that performed similar, are you saying there were plenty of insulation boards, foam boards, which performed similar to Rockwool at the time?
A. Probably not exactly the same as Rockwool, but have different gradings and different categories as the European F to A, so there would have been other products out there that had a different performance standard, but it depends on the thickness as well. They don't all necessarily start at the thinnest one. You might have to get to a normal thickness.
Q. Did it ever occur to you that a compressible mineral wool insulation might be preferable to fill the gaps rather than a rigid insulation board?
A. It would have -- it certainly wouldn't have served the purpose that it was intended for, which was to support the cills.
Q. I see.

Did it ever occur to you that such mineral wool insulation might be preferable in terms of the fire performance of the window surrounds?
A. No.

## 169

Q. Did you ever consider how the uPVC surrounds and the combustible insulation would perform in a fire if there was such a fire in the compartment?
A. No.
Q. And that never gave you cause for concern?
A. No, because it's the overall strategy that deals with fire. In the same vein, in a set of window reveals, there can be curtains, the cill can be full of books, there can be a multitude of other combustibles in that area that are not fireproof.
Q. Yes.

SIR MARTIN MOORE-BICK: Well, it's true to say, isn't it, that the uPVC was particularly susceptible to --
A. Plastic --

SIR MARTIN MOORE-BICK: -- deforming and --
A. Yes, definitely .

SIR MARTIN MOORE-BICK: So it wouldn't provide the same sort of fire protection as plasterboard or some other form of, one might say, more orthodox or at least old-fashioned material?
A. Yeah, definitely not. It's not fit for that purpose. It was fit for the purpose that it was intended for in this situation, which was given us by guidance, which was the product needs to be easy to install, it needs to be quick, it needs to be pre-finished.

And, again, these decisions, when I started reading through the documents, this was way in advance of when we got involved in it that those decisions had already been made.
MS GRANGE: Yes, I understand that, Mr Dixon, we're just trying to understand what you understood at the time and what you were told at the time.

On the uPVC, we know that Rydon had used a plastic fascia and soffit board in the mock-up that you saw first up. That's what we know as the uPVC. Do you know whether the uPVC that SDP then purchased and used for the window was the same as that that had been used in the mock-up?
A. I can't say if it was definitely the same product.
Q. So was SDP ever instructed by Rydon to use a specific type of uPVC board or was that left to SDP to come up with whatever it thought appropriate?
A. It was to try and marry as close as possible to the aesthetics of the one that was already in place.
Q. Did you ever discuss the selection of the uPVC window surrounds with Rydon? Did you ever have a discussion about that?
A. No.
Q. Did you ever consider the appropriateness of the selection of uPVC surrounds when used in combination

171
with a combustible insulation behind?
A. No.
Q. Did you ever consider the fire safety implications of installing a uPVC window surround?
A. No.
Q. Now, expanding foam is my next topic.

Can you just help us -- and, if necessary, we can go back to some of the photos -- is it right that expanding foam was used to fill the oddly-shaped gap at the junction of the window and the concrete column?
A. Not by us.
Q. Not by you?
A. No.
Q. Did SDP ever use any form of expanding foam?
A. Yeah, I don't believe so, not round any of the window surrounds.
Q. If we can look at an image from Dr Lane's report, this is at \{BLAS0000009/13\}, and I want to look at figure 9.10. We did look at this earlier, but we see in the middle label with the red wiggly hatching around it that Dr Lane has noticed that combustible expanding foam has filled the gap there between levels.

Can you help us as to whether or not that was something that SDP did?
A. I don't believe that's anything to do with our works.

There was no point to us putting that in. So I'm assuming at some point it was to fill the gap between the frame in the window and done from the outside rather than the inside.
Q. Right. So just to be clear, to your knowledge there wasn't any form of expanding foam used by SDP installers?
A. Not to my knowledge.
Q. Now, I just want to look now at your statement to the Met Police. This is \{MET00056695\}. This is your main statement that you gave to the police.
A. Yes.
Q. And if you look at the bottom of page 1, we can see you say there:
"[SDP] is an experienced construction company providing ..."

And then you list various works.
A. Yeah.
Q. And then you also say:
"Compartmentation, Fireproofing and Property development."

Do you see that there?
A. I do.
Q. If we also look at the top of page 4 \{MET00056695/4\} of this statement, you say:
"Compartmentation refers to sub dividing areas and what that compartment needs to achieve, this can vary from sound, to fire resistance, and water resistance etc. With regards to the work carried by SD Plastering at Grenfell Tower, the compartmentation was determined and directed as per the architect drawings provided by Rydon."

Then in the penultimate paragraph, you say:
"Compartmentation follows the indicated lines of fire protection given by the architect and can involve either construction of walls or placing of fire proof materials to fill gaps within those indicated lines."

Now, looking at all of that, can you just help us, in what way did your work on the Grenfell project around the windows include compartmentation and fireproofing? Was there any compartmentation and fireproofing?
A. No, there wasn't, there was none indicated as required. Normally what you do is -- and this mainly refers to the lower four floors with the compartment walls, so all the walls in there would be given different ratings, 30 -minute, 60 -minute, 120 , and that means that if you have to then -- someone makes a penetration in your wall, you just need to compartment it back to that line that's shown on the drawings.
Q. Yes.
A. There is no drawings that indicated to us or we was guided to that said, "You need to achieve 30 minutes around the window", or 60 minutes or whatever it might be.
Q. So when you are referring there to compartmentation and fireproofing, is it right that you are actually referring to other works that SDP did at Grenfell Tower?
A. Correct, it had no bearing on the upper floor works.
Q. You also said in those paragraphs that the work at Grenfell that SDP did was determined and directed as per the architect's drawings.

Again, can we agree that you didn't have any architects drawings directing you as to what to do on the window surrounds?
A. Agreed.
Q. If you were aware that compartmentation can include placing of fireproof materials to fill gaps, can you help us as to why at Grenfell Tower no consideration appears to have been given to the gaps around the windows and placing fireproof materials in those gaps?
A. I can only assume again that, prior to our involvement in it, the strategy had been run and someone had taken the decision that it wasn't required in those areas.
Q. Did you ever query with Rydon -- I mean, you have worked for them for a long time, you knew them well.

175
A. Yeah.
Q. Did you ever query and say to them, "We need a proper specification for this and we need the architect to approve this"? Did you ever say that to them?
A. No, because we came so late to the party, we have assumed that everybody else has already run every scenario and got it right. There's been a lot of people involved in getting it to this stage. I don't need to be guided any more than I'm being told it's an aesthetic finish, we've just got to close this off and make it look like it's supposed to again round the windows.
Q. But do you agree that you yourself didn't take any proactive steps to examine the fire performance of the window surrounds and the extent to which those complied?
A. No, I didn't, I didn't, I wasn't asked to.
Q. Now, moving on in the correspondence now, I want to ask you some questions about some correspondence on 27 May 2015 and some issues that were flagged by Rydon about the work to the window surrounds.

If we can turn up \{RYD00042485\}, this is an email from Simon Lawrence to you of 27 May 2015, and the subject is "Grenfell - Flat 145 \& 17th Floor communal".

Now, flat 145 was the pilot flat, wasn't it?
A. Correct.
Q. We can see he says:
"I understand you are visiting Grenfell tomorrow morning to take a look at Flat 145 window trims amongst other areas."

Then he asks in the next paragraph:
"Once you've had a chance to take a look could you give me a call please?"

He talks about the boxing in the next paragraph, which we're not concerned with, and then he says this in the fourth paragraph:
"I then took a look at the window trimming which unfortunately wasn't the finished item that I was expecting. There are still some areas which need tiding up i.e. joint strips need installing, a couple of side trims outstanding and there is a large gap behind several reveal returns which are too large to mastic. Also Andy has used a different UPVC product than the original. It had more of a bull nose. Whilst I preferred the square edge, I'm not that fussed. However they now need to retrim the original window so it matches."

Then I want to read the next paragraph as well, he says:
"My biggest concern is how they have fitted the window boards compared to original attempt. It seems that because they have used a thicker board they have

177
decided not to install a plasterboard packer below. In my opinion that was a big mistake. This means that now all of the windows have a void beneath them which is only partly stuck with grip fill . As soon as you press them they noticeably deflect. Some really badly. In my opinion this isn't acceptable and they all need reinstalling. Have a look and see what you think."

So I just want to ask you a few questions about that and, in particular, about his biggest concern where he talks about the window boards.

Now, is it right that at this point what he'd seen was the use of a thicker board, a thicker insulation board, with no plasterboard packer below?
A. A thicker -- he is talking about a thicker plastic board. So what I believe this refers to is we did one sample window in a flat of which there were more than one window, yeah? So then what you had is there was one window still to finish, they asked Andy to finish that to get handover of the show flat. Andy went to get some available materials, which then was a different plastic capping board, so what he is referring to is, "I've got square-edge on three windows, I've got bull nose on another one. Although it's thicker, I can still push the back down."

So his concerns were not to do with plasterboard; it
was still concerns to do with it looks different to the other windows that had already been finished in there, and also that the back has not been supported correctly.
Q. I see. So when he says, "It seems that because they have used a thicker board they have decided not to install a plasterboard packer below", the thicker board he is referring to is the uPVC, is it?
A. Correct.
Q. But is it right that there had been a decision at this point not to install a plasterboard packer below?
A. I don't think we ever installed a plasterboard packer below. I think we went from staring at it for quite a while and then saying, "Okay, they managed to support it with Celotex in the original one, let's go back and support this with Celotex again".
Q. He is saying --

SIR MARTIN MOORE-BICK: What has happened here seems to be that the alternative window board was deeper than the original one that had been fitted.
A. Correct.

SIR MARTIN MOORE-BICK: It didn't leave enough room for the packing that was originally used, so no packing was used.
A. I think they thought by using a thicker board, they can balance it and stick it to the front and it would

179
self-support at the back, but it doesn't, it wants to do that (indicated).

So I think what we've got to recognise here is the show flat was -- there was a deadline to get it finished, I think you can see in one of Simon's other emails how frustrated he gets with Daniel Osgood or Osborne or whatever his name is saying, "Why isn't it done? Why isn't it done?", and it was all hands to deck, and I think what Andy had done is picked up some more plastic to do this last window to try and get it finished and show the residents and that, and inadvertently picked up a different material. But it was only in that one window location.
MS GRANGE: I see. So you are saying this was a thicker uPVC with nothing underneath it, no plasterboard, no insulation.
A. In all honesty, I don't know if Andy packed it out with insulation, but the mere fact that Simon's saying that he could put pressure on the back and drop it down indicates to me that we'd not supported that as we had done every other window. Because every other window, after they had been completed, we didn't have any defects that said you can push the back down.
Q. Do you agree he seems to be saying in this email that not installing a plasterboard packer below he thinks was
a big mistake?
A. I think he's incorrect. I don't think that's what he meant at all. We never installed a plasterboard packer at the back. There is no window -- if you expose every window on the job, there's never been a plasterboard packer in there.
Q. We saw in your quote for the job that you had got mention of plasterboard --
A. Yeah.
Q. -- and insulation, and you said you wanted to keep that flexible so that you had some choice.
A. And we didn't need it .
Q. Might that not have caused him to think that you were going to be using a plasterboard packer below the uPVC?
A. Okay, but then let's refer to it as exactly what it is, as a packer. That means it can be 35 -mil wide by 100 -mil deep. There is no closing of the cavities, there is no nothing. It acts as a supportive strip. So you can have them at intervals of 500 -mil.
Q. I see. So what you are saying is they wouldn't have stretched across the whole of the gap?
A. So a plasterboard closer, it would have been a packer.
Q. Right.
A. There was talk of creating small plasterboard $100-\mathrm{mil}$ rips, sitting them in there under compression and then

181
making sure the glue line is on there, but what we was finding was, in between those $500-\mathrm{mil}$, you could still get some compression.
Q. Yes.
A. So everyone went, "We've got to get a continuation of that detail" --
SIR MARTIN MOORE-BICK: I think -- sorry, had you finished? Yes. I think you're going a bit fast for the transcriber.
A. Sorry, can't help that. Try not to.

SIR MARTIN MOORE-BICK: Please, if you would, thank you.
MS GRANGE: Yes, so just to be absolutely clear, I think what you are saying is any consideration that was being given to a plasterboard packer was a much narrower product, just a strip of it, which wouldn't have addressed the problem of bowing either side of it.
A. No.
Q. Is that correct?
A. No, and I think --
Q. Sorry, when you say "no", does that mean --
A. Sorry, sorry.
Q. Are you agreeing with me?
A. I am agreeing with you, yes, you're quite right. So the reality is using the smaller plasterboard packers would have just supported areas at different increments rather
than trying to create one detail running through.
Q. Yes.
A. The other problem --
Q. Sorry, sorry. Let's get that down.

Yes, okay, carry on.
A. The other issue with using plasterboard is it's considerably more difficult to scribe in to the gap, which would have been irregular. With the insulation you can then cut it to the approximate side and compress that in.
Q. I see, that's helpful.

Where he says, "This means that now all of the windows have a void beneath them which is only partly stuck with grip fill ", help us, what's the grip fill ?
A. He calls it grip fill, but it's the adhesive between the board -- it's between the board and the plastic. So we stuck the two together.
Q. Between which board and the plastic?
A. Between the insulation board.
Q. Yes.
A. Yeah? And the plastic, that's how we adhered the two together.
Q. I see. So that would suggest that there was some insulation underneath what he'd inspected at this time?
A. Erm, I'm not sure. Can you repeat that bit?

183
Q. Yes. So I'm asking you about -- three lines down in that last paragraph, he said:
"This means that now all of the windows have a void beneath them which is only party stuck with grip fill ."

I'm just asking you what the grip fill was, and I'm trying to work out what was stuck to the grip fill.
A. So I think what he's doing is he is saying you have only stuck the front section with the grip fill -- which is not grip fill, it's the other product that we use -- but you only stuck the front, which means that there is a void at the back, which in turn means that we can push the back of the board down, which was the whole point of putting the bridging material in there.
Q. Yes. Okay.

Was any consideration ever given to putting a full width of plasterboard packer across that gap, thereby enhancing the fire performance of the window?
A. No.
Q. Did you ever think about the fire performance of a plasterboard product in that area?
A. No.
Q. And whether a fire rated plasterboard product might have provided more fire resistance in the event of a fire?
A. It would have done, but it wasn't requested as that was the detail that needed to be done.
Q. Yes. But I think what you're confirming -- and we'll follow this through -- is that, in the end, it was only ever insulation that was installed in those gaps and no plasterboard packer was ever installed ; that's correct, yes?
A. Correct.
Q. Now, Mr Lawrence in his -- we looked in the earlier parts of this email, he obviously thinks you're going to be visiting the tower the next day. Did you actually go in and inspect this window surround the next day?
A. I can't remember. Normally I'm pretty good, if I say I'm going to go and look at it, I'm going to go and look at it, and I would suggest there is no following emails from this, which means we must have rectified it .
Q. Right. Can you recall who might have been with you when you went back and looked at the window surrounds?
A. No.
Q. Now, just look at paragraph 27 of your witness statement, if we pull that up, \{SDP00000196/6\}, you say:
"During the course of completing the Works in the Pilot Unit, it became apparent that, contrary to what I had specified within the Original Quotation, it would not be necessary to use both insulation board and plasterboard to bridge the gap; the insulation board alone being sufficient for this purpose and firm enough 185
to provide the necessary support for the plastic soffit and fascia board. I had made an allowance within the Original Quotation for the potential use of plasterboard in the Works as a precaution in case the insulation board alone did not provide sufficient support for the plastic soffit and fascia board."

So we can see that, and you have just explained to us, I think --
A. Yes.
Q. -- how that came about.

Did that become apparent at the time you were doing another pilot of the window, at the time you were working on window 145 ?
A. No, what I did was I gave myself the flexibility of coming across something else in the building that we hadn't envisaged, because if that had been the case, Rydons would have said, "Can you deal with that problem within your price?" So I had taken them and said, "Right, okay, you might have to do this there, you might have to do that there, but in the most what we've done in the show flat should fit most areas".
Q. Right.

Now, if we can look at another email, an email you send in response to that long one from Mr Lawrence. If we go to \{RYD00042488\}. So this is your reply to

Simon Lawrence, same day, 27 May 2015. You reply in the evening, and you say:
"Evening Simon starting at the top see responses below.
"I am on site tomorrow and will assess all areas but in relation to the points raised.
"The fitting of the window boards was changed by me to try and streamline the process based on a thicker board, this does not work so we will change back to the original method of plasterboard backer first giving a more even surround."

## Do you see that there?

A. Yeah.
Q. Would you agree that, when Mr Lawrence read this, he would therefore have assumed that you were going back to an original method of having plasterboard backer first?
A. Yeah, that's incorrect. We didn't -- we definitely didn't use a plasterboard packer.
Q. So why were you telling Mr Lawrence at this point that you would revert back to that method of installation?
A. It may have been because it was 7.45 in the evening.
Q. So were you saying this to try and get Mr Lawrence off your back?
A. No, definitely not. We don't -- I don't try and get anybody off my back. If I've got a duty to do

187
something, I do it. This is just a mistake. The plasterboard backer wasn't in there, it was actually the Celotex backer.
Q. I see. So are you saying this was just a mistake you made in this email?
A. Yes, yes.
Q. That what you meant to say is: we will go back to the original method of Celotex insulation first, giving a more even surround?
A. Yeah. Even with the bull nose, the thicker board, the thicker board that Andy picked up, when we was questioned over it, I think it was never ever going to work because it wasn't supported enough at the back, so we knew it was going to end up changing back.
Q. Did you ever realise that you had made that error in this email when you were working on the project?
A. No. No, I was only exposed or reminded of this a little while ago.
Q. So you never went back to Mr Lawrence and said to him, "By the way, when I said I was going to change back to the method of installing plasterboard backer, I didn't mean a plasterboard backer, I meant something else"?
A. Correct, I didn't go back to him and rectify that.
Q. If we can turn to SD Plastering's revised quotation that comes in just two days after this on 29 May 2015, if we
can turn that up, we saw it before, \{SDP00000137\}. Here we see in the email you're sending Adam Marriott:
"Morning Adam please find attached our revised window sheet which now includes the boxing [in] ..."

And we know that you added the boxing-in to the front of the flats.

If we look at page 2 \{SDP00000137/2\} of this document, we can see that revised quotation, and if we look in the top left -hand side, do you agree that it still says, "Remove existing frame place plasterboard backer to gain margin and close cavity"?
A. Correct, and I think in my other statement as well that I issued there was a note in there saying that that comment should have been removed for clarity.
Q. Yes. So what you ought to have done is -- so you say you made a mistake in your 27 May email referring to plasterboard backer, and then that wasn't taken out of this revised quotation when you sent it?
A. But that to one side, as we've established, the packer, yeah, which is only going to be 100 -mil wide or anything, would have still benefitted no more apart from it had no combustibility, but the cavity would have still been open.
Q. But do you agree that, based on what we have just looked at, the email and this revised document, Mr Lawrence and

## 189

Rydon --
A. No.
Q. -- would have assumed that you had used plasterboard packer in those locations?
A. That would insinuate that they didn't go and check anything after that point.
Q. I see.
A. They checked every single unit after that point. There was no plasterboard anywhere.
MS GRANGE: Yes.
Mr Chairman, that might be an appropriate moment for a break.
SIR MARTIN MOORE-BICK: Yes.
MS GRANGE: I'm doing well, I haven't got too much left to go, but if we break now, that's a good moment.
SIR MARTIN MOORE-BICK: A sensible time? All right, thank you.

Well, Mr Dixon, we're going to have a short break now. We'll come back at 3.35 , please, and resume then, if that's all right.

Again, please don't talk to anyone about your evidence while you're out of the room.

Go with the usher, please. Thank you.
THE WITNESS: Thank you.

> (Pause)

SIR MARTIN MOORE-BICK: 3.35 , please. Thank you.
(3.21 pm)
(A short break)
( 3.35 pm )
SIR MARTIN MOORE-BICK: Right, Mr Dixon, ready to keep going?
THE WITNESS: Yes, thank you.
SIR MARTIN MOORE-BICK: Thank you very much.
Yes, Ms Grange.
MS GRANGE: Yes.
A couple of times in your evidence this afternoon you mentioned that there was an email involving Rydon where the Celotex product had been mentioned early on.

Can I just take you to a document. This is \{RYD00037749\}, and I think it's in the middle of that page, the Adam Marriott email. So this is Adam Marriott to Simon Lawrence, copying in others at Rydon. So you weren't copied in to this email.
A. No.
Q. He says, "Morning Simon". So it's 1 April 2015, so it's early on in your story of the window surrounds, and he said:
"Everglaze did not use any $4 \times 2$ timber yesterday. To overcome the aluminium track they laid celotex and then applied the upve on top.

## "Regards,

"Adam."
Now, is that the email you were referring to --
A. Yes.
Q. -- earlier in your evidence, where you say it's clear that Rydon themselves, when the mock-up was done, before you looked at that first mock-up, had been using Celotex?
A. There had obviously been some sort of thought already given to that.
Q. You are not copied in to any of these emails; when did you first see these email chains?
A. Only in the last two weeks when I've been preparing myself for this.
Q. I see. So you weren't aware at the time of these emails?
A. No.
Q. But --

SIR MARTIN MOORE-BICK: I'm sorry, Ms Grange, can I just interrupt. This means absolutely nothing to me at the moment. Are you able to explain what people are talking about here? What is the $4 \times 2$ timber doing?
A. Nothing as far as I can tell . Perhaps what they were thinking of doing is placing the $4 \times 2$ timber in between the cavity of the window on the outside and then the

192
concrete on the inside, but I can't see how that would have worked because you would have literally had to have scribed every piece in to do it. And that's what I'm saying, there's some comments between Simon's emails and other emails that I don't really think that they grasped what was actually going to be happening there.
SIR MARTIN MOORE-BICK: Then they say "to overcome the aluminium track".
MS GRANGE: Yes, I was about to ask that.
SIR MARTIN MOORE-BICK: Sorry.
A. So in some instances the track stayed in, so the aluminium is the outer frame of the window.
MS GRANGE: Of the old window?
A. Of the old window, yeah. So to use something like this would have lifted it up enough for you to sail over the top of the track, which I think in a lot of cases the track remained in place where we was, the Celotex raised it up at the back, and then by the time you'd stuck a board across the top on to the front existing board, you could go across the top of the track.
SIR MARTIN MOORE-BICK: Thank you very much. I think I nearly understand.
MS GRANGE: Yes, and I think we do see that this is entitled, "Grenfell Towers - Window surrounds", so the combination of them talking about the Celotex and the 193
uPVC on top, when you read these recently, you thought they were referring to the window surrounds we're dealing with here now?
A. I believe that's the case.
Q. Yes.

When you inspected that show flat for the first time, flat 145 , was it clear that it was Celotex insulation that was underneath the uPVC?
A. No, I'm not sure, I can't really remember, and I think even in one of my earlier statements, I think one of them that we inspected, there was nothing underneath.
Q. Yes.
A. So -- but there must have been a section somewhere that we've stolen the idea, for want of a better word, said, "Well, that seems to work, perhaps what we'll do is we'll support the windows using this method".
Q. So is it your evidence that you think that's where you got the idea of using the Celotex product, because it had been used in that mock-up?
A. I can't say for definite, but in the back of my mind I'm thinking that we've kind of replicated something that somebody else has already done.
Q. Yes.

Now, just a couple of questions on the birch window surrounds. Had birch window surrounds been used, would
that have obviated the need for any packing or wedging around the outside?
A. I have no idea of how they intended -- whether they were going to take the old ones out, completely replace them or how they were going to fix them, were they going to face fix them, the thickness of it. It didn't -- as I say, I have only picked up on the fact that these birch surrounds were the original intention via the information I have been given lately .
Q. I see.
A. Yeah? So there was no mention of this before. This was -- as far as I was concerned, the plastic was the way forward.
Q. Yes.

Now, just picking back up where we were before we broke off, we were discussing the plasterboard backers, and we saw in your email and then in your revised quotation that there was reference to plasterboard backers, but I think what you were then saying was, "Well, we didn't use them and it would have been obvious to Rydon on site that we hadn't used them"; is that right?
A. Correct, yes.
Q. And your evidence is if they'd had a problem with that, they could have told you on site that that was

195
unacceptable.
A. As I keep referring back to, I think you can make one mistake; you don't make a hundred and something mistakes in every single flat. Someone at some point is going to pick up on that process and say: hang on, Building Control have looked at them, we've looked at them, the architect I assume at some point has looked at them, and everybody has come back saying this is fine, this is what we're doing.
Q. Just to be clear, did SDP or you yourself ever get express approval from Rydon not to use plasterboard packers? Did anyone say to you, after those emails and the quotation, "We are okay with you not using plasterboard packers"?
A. No, it's a natural progression.
Q. I see. Was a plasterboard packer ever used in any of the windows?
A. Not to my knowledge. I don't believe they were used anywhere. I think the method that was finally installed was the most appropriate method.
Q. Now, if we can go back to the email that you sent on 27 May 2015 in response to Mr Lawrence's email, this is \{RYD00042488\}, you say towards the end of your message, five lines up from the bottom:
"We are still struggling to find our feet on the
window details and I'm still anxious that taking on these works is going to give me additional headaches I could have done without and add in the time scales I'm not looking forward to it. We are committed now so I need to find ways of making it easier and quicker before I add another team in before we have it under control."
Do you see that there?
A. I do.
Q. Now, can you just explain to us why, at the end of May 2015, SDP were still struggling to find its feet on the window surrounds?
A. It's making the process quicker. What it refers to is the sequence of events. So you have got to remember, when we go into a unit, these are occupied, which means that half of your job is going to be making sure that you can access each window. So it was about trying to streamline the process, that when we went in, we could get on with it, we could cut it perhaps quicker in a different way, we changed the method of cutting it, but they were all round the methodology of doing it rather than changing the specification.
Q. I see. So it was the configuration of how you did it rather than what materials you were using?
A. It's the sequence that we did it in.

197
Q. Did SD Plastering not have sufficient personnel to carry out the work at this time?
A. Not at the speed that they wanted to go at, and one of my concerns was not just let's put two teams in and go for it, it was access. In a residential block, access changes by the minute, which means that you can plan for the best scenario of doing two streams of two flats, one a day, seven units a week I think the aim was, and you get two or three residents drop out now and you have got a lot of people standing still . So it was more a case of me trying to convince them: look, you want to do this logically and in a way that's controllable, let's use one team, yeah? They do this in the morning, that in the other one.

And, actually, there was kind of two parts to it: one part was going in the first day, the windows being taken out, putting the Celotex round, taping it all up, making sure it 's ready for the next day, where the next team comes in and then actually cuts every piece and puts it round there. One of the things that we did to speed that process was team 1 would measure all the plastic so they had a cutting list for the next morning.
Q. Right.
A. So that was that kind of thought process of: let 's manage with one team, let's be controlled in the manner
that we do it, but let's at least make sure that we're sequenced correctly.
Q. So those were the constraints and pressures on you that meant you were not looking forward to carrying out the work and it would give you additional headaches; is that right?
A. Yeah, there is no getting away from it: working in residents' houses is very disruptive for them. It's not always welcomed, and when you are trying to get to every window which has got all of their personal belongings stacked up against it, it's not pleasant for a lot of people, so I very rarely look forward to that.
Q. Can we look at another email now. This is \{RYD00042487\}. This is an email from Simon Lawrence to Daniel Osgood and Simon O'Connor, dated 27 May, about the show flat. Now, this wasn't sent to you, you're not copied in here. He says:
"Gents,
"I've sent an email tonight to Mark explaining my thoughts and asking him to call me when he is on site tomorrow. I thought it best to not copy everyone in so hopefully he doesn't get defensive about the work.
"I've also made Steve Blake aware so he isn't shocked when he visits tomorrow.
"Overall I am extremely upset that we have got to

## 199

today and in my opinion are nowhere near having the flat in a show condition. It shouldn't take me to visit and noticed the issues straight away. Apart from being unfinished in areas the bouncy window board is a disaster. I still can't understand how it hasn't been noticed before."

Then he carries on.
Then at the end of this email he says:
"Please ensure this happens. It's our last chance."
Do you see that there?
A. Yes.
Q. So Mr Lawrence was clearly concerned about the works. Did you get that impression at the time from Rydon?
A. Well, this links into the other two emails that we looked at previously.
Q. Yes.
A. So this is the show flat, so it's not the whole job, it's the show flat.
Q. Yes.
A. There's a lot of pressure on a show flat because you want to get it looking right, because they were ready to show the residents round, I think they had already delayed it once. I think Simon's frustrations are frankly based around the fact that they weren't going to have this ready for the opening day for the client to
inspect and everybody else. So it could have involved painting, masticking and everything.

I think the bouncy cill then leads back to one of the other emails where we changed the window board on that one window. That was in the show flat.
Q. Okay. Is that why Mr Lawrence considered it the last chance to get the works right, because it's all about the show flat and the pressure on that flat?
A. I think probably Simon meant, "It's your last chance", to his managers, saying, "You need to get this right". I think that's probably what he was intimating.
Q. Yes.

Now, I just want to ask you some more questions about the cost to SDP of doing the works and the timescale within which it had to do it. If we can turn to \{RYD00040686\}. We've looked at this before, this is where you sent to Adam Marriott your first quotation, and in the third line where you say:
"... this is nowhere near your allowance ... and believe that even our cost might be tight, the team I was hoping to use wants considerably more money than I have allowed due to the risk element ..."

Can you help us as to what you meant there by the risk element?
A. So let me just make sure I get this in the right
context. So ... well the risk element is I can't foresee how much furniture I've got to move when I go into a unit, how well prepared the unit is, what I'm going to face when I go in there. We hadn't gone round and surveyed every unit at that time. So I think one of the things we implemented in that strategic -- trying to make it better as well, was I sent them a document saying, "Follow this sequence, it will make our lives a lot easier", and one of those was to visit the unit, both Rydons, the RLO and one of my team, one or two days before to make the resident aware of the disruption that was going to happen. But the risk was if I get there and I can't get in, the risk is if I get there and this window is completely different to all the others, or I've got to spend the first two hours of every day moving every piece of furniture in and then placing it back at the end of the day, so the resident doesn't feel like they've had their lives totally disrupted.
Q. At the end of that paragraph, you say, two lines up:
"... I have built a team using mostly employees to tackle this ..."

How did that team differ from the original team you might have been hoping to use?
A. The original team was a team of carpenters. So this is more carpentry work than it is anything else; it 's the
ability to measure, cut and mastic and finish. The carpentry team that I wanted to get there, whether it be the height of the building or location, had just come up with a completely didn't -- because we tried to keep people on price work as much as we can. They just weren't interested, so that meant I had to re-adjust myself, so I brought Andy and then I brought some other labour in that we use all the time, and I built the team that I thought was most suited for doing those works.
Q. Is it right that SDP engaged various subcontractors as part of the installation team?
A. Yes.
Q. And who at SDP had responsibility for recruiting those subcontractors?
A. That would have been conversations between me and Andy.
Q. Yes. And what steps did SDP take to satisfy themselves that the individuals engaged to carry out the work had suitable qualifications and experience?
A. Well, as before, the qualifications they needed were to be able to cut the boards, fit the insulation. So there is no qualification as such; it's experience. So the individuals we used were people that were known to us.
Q. Did you know at the time that Rydon thought that Harley and SD Carpentry were going to be too expensive for this job?

203
A. Not particularly . It might have been mentioned somewhere, but I don't really take much notice of that.
Q. What steps did you take to ensure that the quality of the works completed by SDP was not compromised due to cost pressures?
A. There was only one way to do this, the way that we had done the show flat, which was to use the Celotex, use the plastic. I couldn't come away from that because there was a set method. There was only two/three components in it. There was no way to cost-save it. So if we was going to make it work financially, it was about our efficiency to install it and the methods we used.
Q. If we can now turn to \{RYD00042886\}, this is an email from you to James Clifton of Rydon. It's the one at the bottom of the page there. So this is 2 June 2015, you to James Clifton, copying in others at Rydon and Andy Cole at SDP, and you say:
"Dear all I was on site today and counted the number of the windows per floor which is 36 not 34 as stated by Adam at the time of tender, we will change the sheet and send revised sums in the near future."

Do you see that there?
A. Yep.

25
top of the page, Zak Maynard responds, and he says: "Mark
"The labour time in each flat needs to stay the same so this element of the cost can't change.
"Appreciate your materials cost might be under
pressure but our Budget costs remain the same!!
"Cheers
"Zak."
Do you see that there?
A. I do.
Q. Then I just want to look at your response before asking you some questions. This is at \{RYD00042888\}. So what we can see from this is the following day, on 3 June 2015, you respond to Zak Maynard and James Clifton and you say:
"Zak as it stands today these works are going to be difficult and this is not an element that we wanted to do and still don't so are carrying it out because no one else wanted to. What I can't do is lose money on it, I have already changed from my original team as the prices did not work for them and I am wrestling with keeping the team in place that I have and had to increase their prices to keep them interested in wanting to stay. Perhaps we can ask the carpentry team that is on site to also cost the works ... These works have 205
started much later than you planned [meeting]. I am being asked to increase the programme to two teams at some point which again gives me a lot of pressure I don't need at this point.
"I'm happy for the other team to pick up half of the units leaving me only one window short on my price."
"Please let me know how you wish to proceed."
So is it right from this that, as at June 2015, you're still very reluctant to be doing this work?
A. I'm very reluctant to do this work at a loss, and I think the price reflected the fact that we did increase the cost accordingly, and actually we did run it with pretty much one team as well, because I think in the end they saw sense that it was going to be very difficult to get the access levels that they needed. So I think that although there is a lot of toing and froing, which is a surveyor's job, the outcome was that it was priced as it was supposed to be priced and it was done in the sequence it was supposed to be done in.
Q. Have you already explained to us the reasons why you thought the installation works would be difficult, that's the word you used in that first line, is that for the reasons you have just explained to us?
A. It's occupied refurb, it has its challenges.
Q. Is it right that it was your view that SDP risked losing
money in completing these works?
A. Yeah, I think as much as Zak is playing his game, I'm probably playing my game a little bit as well. I don't want to dumb down everything and say, "Yeah, Zak, that's fine, I' ll take this ". This was also about both of us getting to the right level of the deal.
Q. What steps did you take to ensure that SDP did not lose money on the work?
A. We made sure that we ran it in an efficient manner, by using the one team, by making sure we measured on day one, using all those techniques, I made sure that my team was actually running it as efficiently as they can.
Q. Did this ever impact on the materials that SDP specified for this job?
A. No, that wasn't an area that we was ever going to look to gain on.
Q. Did the cost pressure you were under ever have any impact, in your view, on the quality of the installation?
A. No.
Q. If we can turn now to \{RYD00044331/3\}. This is an email from Daniel Osgood of Rydon to you on 22 June 2015 at 12.09. He says:
"Hi Mark.
"We need more man power on the trimming of the
207
windows. Andy needs someone to refit the curtains. We have tenants waiting and complaints will start."

Do you see that there?
A. Yep.
Q. If we scroll up to page 2 \{RYD00044331/2\}, we can see that you reply on the same day, and in the first lines you say:
"Dan we will not be able to place more labour at this point on the window trims but have a new team starting on Wednesday and several players will be coming out to go to another job. I stated last week that if we go to two teams I believe this will give us issues when appointments fail etc. Can we please run with the new team for two weeks and then reassess if more labour is required."

Now, is that what ended up happening, that you just stuck with the new team rather than having two teams?
A. I just increased the size of the team and gave them different disciplines on the same line, rather than trying to go -- it's a bit more difficult to manage, especially from a QA point of view, where Andy has then got to go to two different flats, he just followed the sequence and it's --
Q. Yes.
A. And I think after this there are very few, if any,
emails indicating that we wasn't achieving what we set out to do.
Q. Now, we saw previously an email from you to Mr Osgood of 29 May that you talked about making recommendations to "streamline the process if we've got a chance of hitting targets ". Again, have you already discussed those with us today; it's things like making sure the measurements are taken on day one --
A. Correct.
Q. -- so that the day two people go in efficiently and install the uPVC on day two? Is that what you are talking about there?
A. Yeah, I believed the process was always going to be a lot easier if we had one controlled team.
Q. Yes. If we could look at \{RYD00042888\}. This is the email -- actually, we have looked at this before -dated 3 June, and if we look in the sixth line down, you say, picking it up at the sentence:
"These works have started much later than you planned meaning I am being asked to increase the programme to two teams ..."
Can you help us, is it right that work to the window surrounds was behind schedule?
A. I think they were. I think they were due to start several weeks earlier.

209
Q. Did the work therefore remain behind schedule throughout the time you were installing those windows?
A. No, I think somewhere along the line we must have picked up the pace a little bit or we was finding the process that we'd actually set out to do was working even more efficiently because I wasn't getting a lot of negative feedback. I mean, there were a lot of units there, I think probably five or six a week, and as I say, I think if you work your way through the emails, there is nothing at the end that says, "You failed miserably in hitting the target dates".
Q. Okay.

Now, just having looked at those emails in the last five or ten minutes, is it fair to say that SDP was under time pressure to get the work done?
A. Everybody's under time pressure all the time, but I resisted that and actually did what I thought was right to do.
Q. I see.

Did those time pressures ever contribute to SDP needing to put together a team of installers which you felt was not ideal for the project?
A. No, they were ideal for the project.
Q. In your mind, did those time pressures ever lead to a compromise in the quality of the work undertaken?
A. No.
Q. Now, supervision of the works. Is it right that the window surround works were supervised by Mr Andy Cole of SDP on site?
A. Yes.
Q. Was Mr Cole himself ever supervised in terms of what he was doing on site?
A. Yeah, I was acting as the kind of go-between, so I would have -- on many occasions I went there, I would have caught up with Andy, checked progress, checked what he was doing, walked a couple of units, so it would have been a combination of me taking -- fulfilling the contracts managers role, although being a director, and Andy doing the actual day-to-day install .
Q. Yes.

If we can look at paragraph 38 of your Inquiry witness statement, \{SDP00000196/9\}, you talk about this phase of the works, and that's the window install, I think, being completed by what you referred to as "SDPL's lead team", and you say who that consisted of.
A. Yeah.
Q. You have at 38.3 an individual called Carl Gellard, who is described as "Work Experience". Can you just help us with that? Can you help us with why you had a work experience person?

211
A. He actually came from the training course that was held on Grenfell. So he was identified as someone who actually wanted to work, he wanted to be part of the team, and he was looking for more work experience.
Q. I see. Was he actually carrying out any of the fitting to the interior window reveals?
A. No, it would have been the lead team, just purely helped do the stripping out, putting the Celotex in place, so he may have cut some of the Celotex, and it would have been mainly Peter and Andrew that had actually gone round and installed it.
Q. I see.

Now, inspections. If we can then look within your witness statement on page 10 \{SDP00000196/10\} at paragraphs 44 to 45 , you say there that there were a number of individuals from Rydon that would inspect and sign off the works, and you list what you call the sign- off team: Mr Martin, Chris Holt, Daniel Osgood. Then you say:
"It had originally been envisaged that one of the Sign- off Team would carry out their inspection(s) on the day on which the Works in the relevant unit(s) had been completed. However, it transpired that the Sign-off Team was not doing so and myself and Andrew Cole had to chase the Sign- off Team on a number of occasions to
undertake their inspections." Do you see that there?
A. Yes.
Q. Now, just in terms of what the sign- off team were inspecting, were they inspecting once the finishes were in and the uPVC was in? Were they inspecting the final install of the windows?
A. The final install . So we're talking more about there the acceptance as a finished product.
Q. Yes.
A. Yeah? The team of players you see there would have been in and out of the units all day long, so they will have been in at different stages. So -- and because we split the two stages up, ie putting the Celotex in on day one and the capping board on day two, that means there was this 24 -hour period for people to actually look and see what's going on and see behind the plastic, so it became more apparent to everybody.
Q. So are you saying that this same team -- Gary Martin, Chris Holt and Daniel Osgood -- would have had opportunities and did take those opportunities to look at the install before the uPVC went on?
A. I would certainly assume so, yes.
Q. You assume so or you actually know that they did on the project?

213
A. I wasn't there every day, but I know Andy -- through talking to Andy, they were certainly in and out of the units countless times during the day.
Q. Given what you have said there at paragraph 45 of your statement about it being envisaged that they would carry out their inspections on the day on which the work was completed, but they didn't do that and you had to chase, in your experience, was it unusual for SDP to have to chase its main contractor to carry out their inspections of the work?
A. It's more a case of self-preservation, if I'm being honest. So the longer we leave the finished product unchecked, the more likelihood that accidental damage could happen to it, and then they go and check a week later after it was finished and say, "Well, there's scratches all over it, that's down to you". So trying to get them to sign off almost immediately after we finish means it gives them a chance to say, "You have not done this bit very well", or, "The resident has also inspected with us, we need to look at this again".

So it's just about trying to keep on top of it, really. The longer you leave it, the more chances that it can be knocked or knocked heavily or scratched or whatever, and then it's trying to recall who did that scratch.
Q. To your knowledge, was Rydon always behind schedule in terms of their carrying out of inspections of SDP's work?
A. No, I think once we'd kind of done this and put the firework in place, they were a lot more kind of proactive in making sure that happened.
Q. Mr Gary Martin has said in his oral evidence to the Inquiry that he was responsible for inspecting the work to the window surrounds after Mr Osgood's departure in July 2015, and that he would speak to you every time he was on site and that he worked very closely with your team. Do you agree with that?
A. I would suggest that Gary had a lot of contact with Andy on site.
Q. With Andy Cole on site?
A. With Andy Cole on site .
Q. Did you understand that Mr Martin was responsible for inspecting the work on behalf of Rydon?
A. It changed on several occasions, but we certainly knew someone was overseeing it at any one point.
Q. If we can then turn to \{RYD00042593\}, this is a Grenfell internal works sequence sheet sent, we think, by SDP to Rydon on 29 May 2015. We have got the date at the top left -hand corner.
A. Yeah.

## 215

Q. We think this followed on from the discussions about the work in the pilot flat with Mr Lawrence at the end of May; is that right?
A. Yes.
Q. Now, at stage 5 of the work there -- so on the left -hand column, we can see "Stage 5 ", "sign off", and then if we read on the right, it says:
"This will take place with Danny on the end of the second day where a SDP QA sign off sheet will be signed by SDP and Rydon saying all works completed, if minor snags can not be undertaken in two day period refer to comments below."

Do you see that there?
A. Yes.
Q. Was that procedure actually followed on site?
A. In the most, as I say from the email previously is that they fell behind slightly doing some of those final inspections and sign-offs, but Andy would produce his QA sheets, hand them to them and say, "Are there any further comments and are there any snags?" And I think during the whole process we were probably emailed perhaps two or three times to say, "Can you go back and rectify this bit here" or "Can you do that".
Q. Yes.

Now, it's right, isn't it, that Rydon did raise
a number of concerns about SDP's workmanship on site?
A. I'm aware of a couple.
Q. If we can look at an example, if we look at \{RYD00055835\}, and I want to look at the bottom of page 1 and on to page 2. Right at the bottom of that page, on 28 October 2015 at 16.33, we can see Chris Holt has written to Andy, and then if we go over the page \{RYD00055835/2\} and see what he says, he says:
"As per our conversation earlier today, I have checked the window trims in flat 53 fitted today and there are several issue (sic) that need addressing:
"1. Top trim in middle bedroom needs redoing ...
"2. In the living room, bottom trims along the windows are not straight ...
"3. There is some excess mastic left on the trims in the living room.
"This is not a good workmanship and I have been told by the tenant that the operatives have tried to rush through the job and therefore we have this result. Could you organise for this to be rectified next week. Please, bare (sic) in mind that we need to make an appointment with the tenant as he is not always in the property."

We can see from the top of this chain on page 1 \{RYD00055835/1\} that you were cc'd into this email

217
chain.
A. I thought I responded, didn't I?
Q. You may have done. I don't think that's in this particular chain, but we can see at the very top that you do get looped in to this chain.
A. I thought I responded.
Q. Right, okay.
A. But just again --
Q. Sorry, just for a moment.

Did receipt of that email give you cause for concern about Mr Cole's ability to manage the works?
A. No, this unit was completely different to any other unit we'd been in. They'd created some detailing around the windows that wasn't apparent anywhere else. So they had to think on their feet. They'd done the pre-survey, they got in there, it still wasn't quite working, and Chris had picked up on this because the residents had obviously done some work themselves. It wasn't interfacing very well with their works, so he asked to rectify it and change it, which we did.
Q. I see.
A. But I think after this --
Q. So you don't think that what happened here, when Mr Holt is saying that SDP was rushing through the work to meet deadlines, you wouldn't accept that that was
representative of the way in which the work was carried out on site?
A. Are there any further emails from Chris Holt to us?
Q. I'm just asking you whether you understood that SDP had been rushing through the work to meet Rydon's deadlines in many of these flats?
A. No, it took exactly the same timescale that we planned for it to take. It didn't take any less or any more.
Q. Now, you have referred at paragraph 47 of your witness statement $\{$ SDP00000196/10\} to the fact there was a clerk of works, Jon White, appointed by the employer to carry out inspections of the refurbishment work generally, including the works.

Mr Cole has said at paragraph 24 of his witness statement \{SDP00000220/5\} that these inspections were carried out regularly.

Can you help us as to how frequently Mr Jon White inspected the works carried out by SDP to the window surrounds?
A. No, I can't. I believe the clerk of works was on site a couple of times a week, so if they did a walk-round with him, I assume as part of that walk-round, communals, externals, internals. So perhaps twice a week, but it's very difficult to say for certain. But obviously Andy refers to the fact that he did see him on

219
a regular basis.
Q. Do you know whether Mr White saw the way in which the gaps between the new windows and the old timber window surrounds were being filled?
A. Again, because it was a two-day process, you've got the progressive. I would assume that he has seen both of those, and I believe he must have been shown the show flat as well.
Q. I see.

Did Mr White ever provide feedback to SDP on the work being carried out to the window surrounds?
A. Not to my knowledge.
Q. If we could now turn to \{RYD00044167\}, and I want to look at the bottom of page 1 and over to page 2.

So start at the bottom of page 1 . There is an email from Simon O'Connor, 18 June at 15.18 , right at the bottom there, to Mr Osgood. If we can go over the next page \{RYD00044167/2\}, we can see at the top of that page that you are cc'd into this email, Mark Dixon and Andy Cole, and the subject is "Window sign offs", and he says:
"Afternoon Danny,
"Following a conversation with Andy Cole SDP this afternoon he is concerned that we are ploughing ahead with internal window trimming and currently none have
been signed off by COW.
"Is this correct?
"Please can you update me on this urgently as we should be getting these signed off on a weekly basis."

Now, do you remember seeing that email at the time?
A. I was copied in to it, so I must have seen it at some point.
Q. If we then look at Mr Cole's response in the second email in the chain from the top on page 1
\{RYD00044167/1\}. So on 18 June 2015, Mr Cole responds, and he says:
"Hi all again
"Friday count will be 17 but I have signed of 15 units and 2 are sitting on the desk and I will check them Monday but please be aware by Wednesday 24th June there will be another 4 units to be signed [ off ], it would be better if they were done each week so not to have a backlog of units."

> "Thanks
"Andy Cole."
So is it right that, at this point, the clerk of works was not inspecting the work on a regular basis so that there was a backlog that had built up?
A. I think he was inspecting them, I just don't think they were doing the final sign-off paperwork.

221
Q. I see.
A. So it's more of a case that he was still doing his duties, looking in the flats, checking things. I think possibly what has not happened is the final document, if you like, which goes to Rydons, that we can refer back to and say: it was signed off on this day.
Q. Yes, okay.

Did you ever take any steps to ensure that the clerk of works' inspections were more regular for the works you were carrying out? Did you ever initiate --
A. Probably this is instigated by me.
Q. Right.
A. Andy's emails.
Q. Yes.
A. I would have asked Andy, "How many are signed off?" He would have said, "We're still waiting for some sign- offs ". I would have said, "Can you send an email, let's prompt everybody to get back to the process".
Q. Would you agree that this email chain might suggest that the clerk of works was inspecting only the finished and final window surrounds rather than inspecting the installation process as it progressed?
A. Possibly, because the sign- off for me was the final sign-off. The progressive inspections didn't necessarily need a sign-off, but we needed to make sure
that as many bodies as possible were looking at them as we went through. The clerk of works wasn't there every day, so he would have taken a percentage view on everything.
Q. What does that mean, he took a percentage view on everything?
A. He can't see every single one at every single stage. He might be able to be there on the day after they've installed. So let's say we finished it on a Thursday, he might come in on a Monday and go round five units and inspect the final bit, but the day before, he might only be able to inspect the install that's taken place on that day because it's only exposed for 24 hours, the subframe.
Q. I see.

Can we now look at \{RYD00082733\}. This is a site inspection report which is authored by Mr Jon White of John Rowan and Partners, and it's dated 16 June 2015. Do you see that there?
A. Yes.
Q. If we can go within this report at page 3
\{RYD00082733/3\} and look at the second photograph down in the right-hand column. We can see on the right-hand side in his report he said:
"Flat 145, internal window trimming has been

## 223

finished and KCTMO has agreed the finish. As from today 9 flats have been finished, including old frames out, new glass and trims fitted."

Do you see that there?
A. I do.
Q. Now, do you know what he means by "КСTMO has agreed the finish "? What would that mean?
A. It 's not the Kensington and Chelsea TMO?
Q. Yes, but I mean, does that mean anything to you as to whether anyone from the TMO was agreeing the finishes of the window surrounds?
A. Oh, yeah, but I don't know who that refers to specifically, but that indicates to me that he has shown more individuals, and that's the show flat as well, 145.
Q. Were you aware of any TMO employees/individuals inspecting the window surrounds?
A. No.
Q. So far as you were aware, did RBKC Building Control ever see the work to the window surrounds as it progressed?
A. Yes, as Andy's statement that they saw them on a regular basis, whether that be once or twice a week, and we would have been at both stages at any one day. So one day you would have had the inner frames exposed, the second day you'd have seen the plastic on.
Q. I'm talking now not about the clerk of works, but about

RBKC Building Control officers or inspectors.
A. No, I don't know.
Q. You don't know?
A. No.
Q. So you can't help us as to whether or not Building Control did ever go in and see the window surrounds, including what was underneath and the uPVC?
A. No, I'm not even sure I would have known who it was from Building Control that came to site.
Q. Yes.

Final topic now: complaints. If we can turn to \{RYD00085892\}, this is an email from Emma Kelly at Rydon to Harley, copying in individuals at Rydon. What's happened in this email is she has compiled a list of issues relating to the -- a list of outstanding defects relating to the windows in this.

Now, do you remember ever seeing this email or anything like it at the time?
A. No.
Q. Now, if we look in the fourth line up from the bottom in the table on that page, there is a description there. It says on the left -hand side "gaps in windows, 85 Grenfell Tower", and in the final line "Draughty Window".

Were you ever made aware of complaints about gaps or 225
draughts around the windows?
A. No, not to my knowledge. I'm assuming that that refers to the actual window itself rather than the surround, but it's difficult to tell from the limited information you've got there.
Q. So you weren't made aware of gaps or draughts around the windows?
A. To our section of the works?
Q. Yes.
A. No, and again, one of the things we did -- I think there might have been in the early stages, we might have noted that there was some cold air round that, so hence why everything was taped in. So if you look at any of the window surrounds, we foil taped it, and that would have acted as a vapour barrier or a better air seal.
Q. Were you ever made aware that there were a number of complaints made by residents about the window surrounds after completion of the works?
A. If we was, we would have rectified them, but I'm not aware that we ended up going back too many times to many flats.
Q. Can we just look at one more document. This is \{IWS00001296\}. This is the witness statement of a lady called Maryam Yusuf Adam, who was a resident of flat 14 of Grenfell Tower.

At paragraph 20 on page 4 \{IWS0001296/4\}, she says this :
"I further raised a concern with the polystyrene material that was being used on my ceilings and in between the window frames. I was told that this material was water resistant but flammable.
I complained because this material retained heat and I was already too warm in my flat. I mentioned this is my statement to the MPS. No one addressed my concerns about the materials and it turns out that my concerns were legitimate ."

Were you ever made aware of any concerns about the material being used around the side of the window? She is talking here about a polystyrene material used on the ceilings and in between the window frames.
A. No, we wasn't made -- specifically about anybody saying -- a resident saying, "This is not the way we want it done".
MS GRANGE: Right. Okay.
Mr Chairman, those are all my questions.
SIR MARTIN MOORE-BICK: Right, thank you very much.
MS GRANGE: If we could just have a short break and then sweep up anything else.
SIR MARTIN MOORE-BICK: How long do you think you might need for that purpose?

227
MS GRANGE: I wouldn't have thought any more than ten minutes.
SIR MARTIN MOORE-BICK: Right.
Mr Dixon, when counsel has got to the end of her questions, we need to have a short break to take stock and see if any questions need to be added, particularly from people watching elsewhere.

So we are going to have a short break now. We will come back at 4.35 and see if there are more questions at that stage. All right?

So would you like to go with the usher, and we will come back then.

> (Pause)

MS GRANGE: Thank you.
SIR MARTIN MOORE-BICK: Right, 4.35.
MS GRANGE: I'm grateful, thanks.
( 4.24 pm )
(A short break)
( 4.35 pm )
SIR MARTIN MOORE-BICK: Right, Mr Dixon, we will see if there are any more questions for you.

Ms Grange?
MS GRANGE: Yes, just one email chain I want to take Mr Dixon to in fairness to him. If we can bring up \{RYD00055860/2\}, at the top.

So I think you said in your evidence early on that you had responded to the problems that had been identified in flat 53, and if we look at the top of this email, I think this is where you come in to the email chain, and you say to Chris Holt and Andy Cole on 29 October 2015:
"If they are workmanship issues then fine but this is not as it has been explained, if the issues can be resolved with yourself in attendance then all are aware of what has been agreed. My understanding is that this unit is not the same as all the others hence the adaption, Andy can you confirm that the issues raised are down to poor finishing ."

So I think, as you explained earlier, you seem to be saying in this email that this was a rather unique--
A. It was, yes.
Q. -- flat with some special issues.

Then if we can go one up to Mr Holt's response
\{RYD00055860/1\}, we can see there he says, "Hi Mark", same day, 29 October 2015:
"Thank you for your email. The way it looks to me, it is down to poor workmanship on this section of the property (in general, the standard is very good). If there is an issue fitting any materials, I normally go to the property and discuss with the operatives and 229
agree with the resident that there is no other way to do it and ensure that the Client will accept this.
"Please, advise on the way forward."
So I think, to be fair to you, he is saying it is down to poor workmanship, but he then says in brackets "in general, the standard is very good", and I just wanted to give you the opportunity to see that email chain, since you'd asked before to be shown it.

Is there anything more you want to say about that?
A. No, that's fine.

MS GRANGE: Thank you.
Mr Chairman, those are all my questions, thank you.
SIR MARTIN MOORE-BICK: Good. Well, thank you very much.
Well, Mr Dixon, those are all the questions we have
for you. Thank you very much for coming to give your evidence. It's been very useful to hear from you, and we're very grateful, so thank you very much.
THE WITNESS: Thank you.
SIR MARTIN MOORE-BICK: And now, of course, you're free to go.
THE WITNESS: Okay, thank you.
SIR MARTIN MOORE-BICK: Thank you very much.
(The witness withdrew)
SIR MARTIN MOORE-BICK: And that's it for the day, Ms Grange, I think.
22
23

MS GRANGE: Yes, thank you, that's right, and tomorrow we have Mr John Hoban, and Mr Millett will be back in this seat.
SIR MARTIN MOORE-BICK: Yes, all right, thank you very much.
Before we go, I would just like to say thank you to
our transcriber, who I think has had a particularly
challenging day, and I would like you to know that we
are very grateful for all your work. Thank you.
Right. We will stop now. 10 o'clock tomorrow,
please. Thank you.
MS GRANGE: Thank you.
(4.38 pm)
(The hearing adjourned until 10 am
on Wednesday, 30 September 2020)

## 231

INDEX
MR GRAHAME BERRY (affirmed) $\qquad$
Questions from COUNSEL TO THE INQUIRY ......... 1
MR MARK DIXON (affirmed) .......................... 91
Questions from COUNSEL TO THE INQUIRY ........ 91

a1 (1) $154: 9$
a2 (1) 154:9
ability (4) 14:20 147:14
203:1 218:11
able (12) 36:19 72:2,24
97:4 124:16 127:18
160:25 192:21 203:20
208:8 223:8,12
above (6) 35:25 49:6
61:15 151:17 161:4,5
absolutely (4) $82: 2$
161:2 182:12 192:20
abutted (1) 109:20
accept (4) 39:15 80:10
218:25 230:2
acceptable (2) 29:20 178:6
acceptance (1) $213: 9$
access (5) 123:25
197:17 198:5,5 206:15
accidental (1) 214:13
accordance (1) $30: 19$
accordingly (1) 206:12
accords (1) 155:9
accumulated (1) 11:20 accused (2) 87:12 116:3
achieve (3) 153:10 174:2 175:2
achieved (3) 105:23 108:3 147:6
achieving (1) 209:1
acm (3) $28: 4$ 30:4 31:2 across (14) 84:1
85:15,16 123:3 134:13 137:23 160:18 162:16 164:12 181:21 184:16 186:15 193:19,20
acted (1) 226:15
acting (1) 211:8
activated (1) 53:23
activities (1) 86:11
acts (1) 181:18
actual (6) 12:14 28:9
113:12 136:25 211:14 226:3
actually (50) 5:23 11:2 20:1 33:8 40:13 48:2 49:8 51:25 62:21 78:13 97:17 104:3 108:3 111:14 112:18 115:15 116:25 119:16 125:20 126:23 127:18 128:18 138:14 140:20,21 142:6 147:5,21 149:8 159:17 164:12,18 175:6 185:9 188:2 193:6 198:15,19 206:12 207:12 209:16 210:5,17 212:1,3,5,10 213:16,24 216:15 adam (12) 101:5 120:16 123:19 135:24 189:2,3 191:16,16 192:2
201:17 204:21 226:24 adaption (1) 229:12 add (3) 147:1 197:3,6 added (4) 21:24 109:3 189:5 228:6
additional (3) 139:6 197:2 199:5
addressed (3) 134:2 182:16 227:9
addressing (1) 217:11
adds (1) $84: 5$
adhered (1) 183:21 adhesive (4) 130:1
159:21,23 183:15 adjacent (2) 68:20
133:8
adjourned (1) 231:13 adjournment (1) 122:10 advance (1) 171:2 advise (1) 230:3 aesthetic (3) 115:10 118:23 176:9 aesthetically (1) 116:11 aesthetics (2) 108:5 171:19
affect (2) 114:19 117:5 affirmed (4) 1:8 91:15 232:2,4
afford (1) 166:23 afraid (2) 74:12 109:21 after (30) 8:23 45:20,24 47:19 48:18,19 58:13,14 60:22 61:22 66:12 70:20 90:22 103:17 104:14 106:7 113:20 117:9 180:22 188:25 190:6,8 196:12 208:25 214:15,17 215:9 218:22 223:8 226:18
afternoon (4) 83:16 191:11 220:22,24 afterthought (2) 166:4,8 afterwards (4) 16:7 22:19 47:9 108:14 again (51) 2:6,16 3:16 9:6 19:25 26:7 31:1 36:12 39:20 41:11 42:10 52:13 63:3,6 79:14 82:16 93:2 102:5 103:9 107:9,15 108:13 111:12 113:3 120:3 128:6 131:12 133:17,23 134:18,20 141:6 149:3 153:8 154:11 159:3 164:9 168:24 171:1 175:12,21 176:11 179:15 190:21 206:3 209:6 214:20 218:8 220:5 221:12 226:10 against (9) 50:14,22 101:19 119:8 125:20,20 154:7 164:13 199:11 agencies (2) 69:15,21 agency (4) 69:14 70:3,4 80:14
ago (6) 15:16 34:20
107:17 130:15 146:22 188:18
agree (26) 57:25 59:2,17,18 64:5,7 85:6 112:12,25 113:9 116:1 120:20,23 121:12 141:24 152:4 157:12 175:12 176:12 180:24 187:14 189:9,24 215:12 222:19 230:1 agreed (10) 14:14 41:1 56:20 113:6 143:22

147:19 175:15 224:1,6 229:10
agreeing (3) 182:22,23 224:10
agreement (3) 13:9 142:11 143:10
ahead (1) 220:24 aim (1) $198: 8$
air (6) 22:18 25:9,15 85:17 226:12,15 airtight (2) 18:19 23:9 alcoa (3) 30:24 32:6,9 allocated (1) 115:9
allowance (4) 123:20 124:5 186:2 201:19
allowed (5) 123:23 124:5,7 144:20 201:22 almost (4) 6:25 21:12 148:5 214:17 alone (3) 154:14 185:25 186:5
along (4) 134:15 161:10 210:3 217:13 alongside (1) 68:16 already (28) 23:16 34:8 64:7 100:1,10 108:25 113:11 114:25 117:2 142:9 147:6,19,21,22 149:23 153:17,18 171:3,19 176:6 179:2 192:9 194:22 200:22 205:20 206:20 209:6 227:8
also (37) 1:22 2:2,23 3:7 9:3 44:18 48:9 53:6 60:4 67:11,25 89:25 92:16 95:5 98:19 99:12 101:5,8 106:23 114:4 115:17 127:20 128:8 138:15 139:6 142:5 144:11 161:4 173:19,24 175:9 177:16 179:3 199:23 205:25 207:5 214:19 alternative (4) 116:10,19 118:1 179:18
although (5) 96:25 139:2 178:23 206:16 211:13
aluminium (9) $30: 5$ 31:18 33:14 112:3 118:11 125:14 191:24 193:8,12
always (13) 52:21 62:12 63:19 75:2,18 78:1 82:12 87:15 138:18 199:9 209:13 215:1 217:22
among (1) 94:20 amongst (2) 105:24 177:2
amount (9) 11:19,20
20:17,18 21:23 52:14 64:1 124:19 130:15 ample (1) 131:8 andor (2) 30:18 167:17 andrew (3) 110:16 212:10,24
andy (32) 121:16
148:8,11,12 177:16 178:18,19 180:9,17 188:11 203:7,15

204:18 208:1,21 211:3,10,14 214:1,2 215:13,15,16 216:18 217:7 219:25 220:20,23 221:20 222:15 229:5,12 andys (2) 222:13 224:20 angle (6) 16:4 36:19
51:5 161:4,9 162:15 angles (1) 46:24 animals (1) 83:21 another (26) 16:9,24 17:1 21:19 25:14 41:8 45:25 56:16 60:16 73:6 82:14 90:25 91:11 113:21 128:14 129:4 138:8 158:6 161:13 178:23 186:12,23 197:6 199:13 208:11 221:16 answer (3) 15:15 26:16,17
answered (1) 39:10 answers (2) 41:11 59:20 anxious (2) 25:20 197:1 anybody (10) 26:21 27:1 33:24 65:20 83:7 98:14 138:12 153:8 187:25 227:16
anymore (1) 146:16 anyone (20) 3:19 27:3,8 54:16 55:12,13 56:24 59:10 66:8 89:4 93:19 110:4 122:2 131:19 134:5 152:12,16 190:21 196:12 224:10 anything (44) 1:19 4:9 8:14 12:14,23 18:4 35:5 37:18 48:20 49:13 66:8 77:9 85:12 86:5,8,9 90:3 91:24 96:21 112:8 114:24 122:3 131:1,2,7,23 137:25 141:11 142:14 143:2 145:16 151:1 153:23 154:5 163:1 165:21 172:25 189:21 190:6 202:25 224:9
225:18 227:23 230:9
anytime (2) 75:2,19
anyway (14) 31:13,14 46:8 51:21 54:19 58:15 63:20 72:8 75:17 84:25 86:9,18 124:15 146:10
anywhere (4) 124:13 190:9 196:19 218:14 apart (5) 13:19 53:1 118:21 189:21 200:3 apartments (1) 18:3 apparent (6) 119:20 166:19 185:21 186:11 213:18 218:14
appear (5) 2:2 57:25 63:16 86:21 102:1 appeared (4) 37:5 61:9 161:5 166:7
appears (3) 36:5 84:12 175:19
appendix (2) 136:17,21 application (3) 44:21 152:19 167:12
applied (6) 34:13

138:16 161:20 162:14 168:14 191:25
applies (1) 137:23 apply (3) 43:9 138:14 147:2
applying (2) 132:4
135:4
appointed (1) 219:11
appointment (1) 217:22
appointments (1)
208:13
appreciate (2) 91:23 205:5
appreciated (1) 1:17
apprentice (1) 5:22
approached (2) 99:8
103:22
appropriate (7) 50:5
139:18 142:12 154:18
171:17 190:11 196:20
appropriateness (1) 171:24
approval (3) 155:7,10 196:11
approve (1) 176:4
approved (8) 31:24 32:8 64:18 65:4 88:9
144:24 148:15 155:13
approximate (4)
19:13,20,25 183:9
approximately (8) 19:12,18 23:14 29:2 118:12 124:17 156:13 161:23
april (6) 99:19
100:15,19,21 102:9
191:20
architect (7) 133:15
134:19,19 174:6,10
176:3 196:7
architects (6) 41:2
134:7 165:4 166:18 175:11,13
arconic (5) 30:24
32:6,9,13,20
area (6) $33: 13$ 59:8 85:22 170:10 184:20 207:15
areas (12) 59:5 62:5
130:8 143:18 174:1
175:23 177:3,12 182:25 186:21 187:5 200:4
arent (2) 108:4 151:9
arisen (2) 58:11,12
arising (1) 66:24
around (68) 4:21 5:7
16:18 21:23 24:12
34:4 35:19 38:1,8 43:17 54:4 57:22 59:2 62:13 63:6 64:11,19,24
65:2,10,13,22 69:2,3 96:10,20 99:19 109:9 110:23 111:8 114:25 115:4,15 117:20 119:1 124:12 128:8 129:22 130:4,12,24 131:19 134:22 135:5 148:16,21,22 149:6,11,18
150:9,22,25 151:9,19
168:8 169:1,2 172:20

174:14 175:3,19 195:2 200:24 218:13 226:1,6 227:13
arrangement (3) 16:2 135:16 158:10
arrived (2) 19:19 62:18
asap (2) 11:10 12:9
asbestos (1) 73:2
ask (27) 1:20 3:23 6:10 7:25 18:24 19:4 24:16 26:20 38:18 59:21 66:7 75:5 88:19 91:25 92:18 99:7 103:11
122:2 123:16 137:25 152:16 165:20 176:16 178:8 193:9 201:13 205:24
asked (35) 8:9,12
14:7,23 25:15 26:13
27:14 36:25 38:22

21:16 22:4 54:21 55:12 58:22 59:16 70:21 71:13 83:14 84:20 85:1,4 86:24 balance (1) 179:25 bandied (1) 124:21 banging (1) $83: 21$ bar (2) 12:14 26:5 bare (1) 217:21 barrier (23) 29:8 39:9,13 45:1,7,8 46:5 47:25 50:1,11 51:11 52:21 53:16 57:9,10 59:1,12 60:3,25 61:1,11 149:18 226:15
barriers (96) 6:6 28:6 29:6,7 34:16 38:19 39:1,6,15 40:23 41:13,18,19 43:9,11,13 44:1,12,15,20,21 45:3,18 46:15 47:12 48:2 49:1,21 50:2,18 51:14,17 52:1,5 53:4,10,21,22 54:4,8,25 55:5,14,18,25 56:4 57:2,19,20,21,22 58:2,9,9,20 59:23 61:7,10,13,14,16,16,17,24 62:1,9,17 63:8,10,14 64:11,19,24 65:10,21 67:1,2,6 68:1,8,9 88:1,2 148:16,21 149:1,3,6,7,8 150:9,22,25
151:9,10,19
base (2) 126:13 141:7
based (8) 142:11
153:25 168:4 169:1,2 187:8 189:24 200:24
basic (1) 128:2
basically (1) $67: 14$ basis (11) $10: 12$ 15:7 26:18 69:11 115:20 143:23 144:20 220:1
221:4,22 224:21
baton (1) 164:23
batons (1) 163:19 bba (1) $30: 3$
bba00000047 (1) 30:3
bba000000473 (1) 30:14
bba000000476 (1) 31:21
bearing (1) $175: 8$
became (3) 5:21 185:21 213:17
become (4) 54:13 119:19 166:19 186:11 becoming (2) 94:3 109:24
bed (1) $123: 18$
bedroom (1) 217:12 before (57) 3:19 5:22 7:3 13:22 15:20 23:17 29:19,21 30:8 31:2,10,16 32:15 33:3 34:10 41:19 58:20 59:12 63:11,18 65:18 67:2 79:5 82:23 93:19 94:3 102:6 104:14 106:7 114:8 120:14

128:21,22 132:24 141:22 145:18 146:21 153:18 162:23 164:1 165:24 189:1 192:6 195:11,15 197:6,6 200:6 201:16 202:11 203:19 205:11 209:16 213:22 223:11 230:8 231:5
began (1) 69:1
beginning (2) 69:19 167:2
begins (2) 28:11 121:3 behalf (2) $152: 12$ 215:18
behave (1) 149:14 behaviour (1) $85: 5$ behaviours (1) 84:5 behind (12) 79:23 80:13,14 114:6 158:1 172:1 177:14 209:23 210:1 213:17 215:1 216:17
being (59) 14:23 17:19 24:9 25:1 30:4,23 32:12 34:24 37:3,18 43:19,20,21 47:4,13 48:12 54:25 55:5 58:21 60:25 61:17 62:11 71:13 78:19 79:1,5 81:17 89:25 96:6 102:14 103:22 104:24 108:20 112:8 120:9 121:11 130:11 131:15 141:5 147:15 156:1 158:19 166:1 168:18 176:9 182:13 185:25 198:16 200:3 206:2 209:20 211:13,19 214:5,11 220:4,11 227:4,13
beings (1) 86:6 believe (23) 84:23 87:3 93:10 99:24 100:19 106:25 110:1 119:17 120:22 123:21 135:15 153:5 163:9 164:12 172:15,25 178:15 194:4 196:18 201:20 208:12 219:20 220:7 believed (1) 209:13 belongings (1) 199:10 below (16) 21:10 49:6 61:5 77:22 126:11 161:5 162:11 178:1,13 179:6,10,12 180:25 181:14 187:4 216:12 ben (9) 20:24 21:1 54:21 55:12 58:22 59:16 83:14,16 85:4 benchmarks (1) 150:17 beneath (3) 178:3
183:13 184:4
benefit (1) 127:22 benefitted (1) 189:21 berry (50) $1: 5,6,8,9,16$ 3:7,12 4:2,18 6:14 7:8,10,11 8:1,4,13 9:2 10:15,23,24 12:15 13:5,12 14:8,23 15:15 18:22 19:5,9 24:15 27:9 32:5,8 38:23,25 54:23 55:13 62:8

66:5,19 69:4,10 77:22 80:13 81:7,19 88:18 89:17 90:14 232:2 berrys (9) 12:2 13:1 14:12,16,19 15:22 19:6 54:7 68:25
beside (2) $45: 25$ 52:13 besides (1) $68: 16$ best (3) 3:16 198:7 199:21
better (4) 194:14 202:7 221:17 226:15
between (61) 3:1 13:4,9 15:9 17:7 18:13 20:15 22:2 23:7 32:20 34:25 43:19 45:7 46:5,14,25 50:3 53:12,18 58:25 61:12 68:8 73:24 100:3,19 110:25 111:24 112:5 113:3 114:8,17 117:16 118:8,13 124:22 135:6,17 139:16 142:11 150:13 151:15,20 157:18 161:16 162:5,25 164:18 168:21 172:22 173:2 182:2 183:15,16,18,19 192:24 193:4 203:15 220:3 227:5,15 betweenaround (1) 167:15 beyond (8) 111:9
115:3,5 118:7,17 119:4 160:21 163:23
bez (9) 6:21 9:18 11:12
21:6 24:20 70:23
83:18 87:2,17
bid (2) 8:13 19:9
big (5) 22:23 36:18 159:10 178:2 181:1 biggest (4) 87:7 143:7 177:23 178:9
bill (4) 11:16 21:21 39:20 40:21 birch (8) $164: 15$ 166:6,14,17,22 194:24,25 195:8 bit (33) 5:12 16:6,22 18:25 20:17 27:22 35:25 63:13 74:10 102:9 103:6 109:1 113:7,9,19 115:9 125:25 129:17 135:9,16 144:23 163:17 164:3,4 165:8 182:8 183:25 207:3 208:20 210:4 214:19 216:23 223:11 black (7) 33:2,5 44:3 45:9 63:1 161:19 164:9
blake (2) 121:5 199:23 blas000000848 (1) 59:25
blas000000913 (2)
161:13 172:18
blas000000920 (1)
157:7

## blas00000095 (1)

163:16
blas00000096 (1) 160:7
block (4) 13:24 40:25 148:25 198:5
blocks (2) 13:24 159:15 blow (3) 60:1 133:5 157:9
blue (1) 30:7
board (56) 17:25 28:20 105:20 106:11,17 110:19,22 112:4,7,13 113:25 114:13 125:20 128:3 129:22 130:1,3,11 132:11 142:12 153:5 158:1 160:17 162:14 164:11 168:23 169:17 171:9,16 177:25 178:12,13,15,21 179:5,6,18,24 183:16,16,18,19 184:12 185:23,24 186:2,5,6 187:9 188:10,11 193:19,19 200:4 201:4 213:15
boards (15) 43:2 59:1 105:25 142:20,21 156:10,10 159:6 160:3 169:6,6 177:24 178:10 187:7 203:20
bodies (1) 223:1 bolts (1) $32: 22$ books (2) 110:9 170:8 both (17) 61:23 69:22 74:6,15 87:25 88:3,4,6,8 98:8 126:18 127:7 185:23 202:10 207:5 220:6 224:22
bottom (38) 9:22 11:21 24:18 30:6 44:20 51:20 52:21 53:1 60:24 67:20 73:7 74:10 76:13 77:17 81:4 82:18,19 86:22,23 129:19 140:3 157:22 158:21 162:4 163:19,21 164:21 167:8 173:13 196:24 204:16 217:4,5,13 220:14,15,17 225:20
bouncy (2) 200:4 201:3 bowing (16) 105:25 109:6,18,25 110:5,18 111:3,18 112:1,14 116:14 122:19 128:4 164:4 168:12 182:16 box (5) 3:1 30:7 126:9 129:4,20
boxes (1) 103:17
boxing (3) 101:10 177:7 189:4
boxingin (2) 133:7 189:5
bracket (2) 50:9 163:1 brackets (4) 47:3 50:5,7 230:5
brand (3) 129:11 167:24 168:24
branded (3) 35:20,21 36:4
branding (2) 153:4 157:15
bre (5) $60: 17,20,21$ 61:5,9
break (22) 10:4 26:5

64:13 66:1,3,5,17 88:15,23 89:15 91:9 120:14 121:18,22 190:12,15,18 191:3 227:22 228:5,8,18
breakdown (1) 21:5
breaking (1) 109:7
breaks (4) 43:17,21,22
82:24
bres (1) 61:23 bridge (7) 110:20 112:5,14 118:23 119:5 126:5 185:24 bridging (2) 118:21 184:13
brief (1) 8:17
briefly (2) 41:24 96:12
bring (5) 2:13 3:11 30:2
92:17 228:24
british (1) 137:13
broad (1) 97:12
broke (2) 53:17 195:16
brought (5) 35:17 79:5
145:15 203:7,7
bs (2) $139: 2$ 167:11
budget (5)
124:7,9,18,23 205:6
build (3) 54:17 131:16 155:23
building (115) 4:7,22
5:1 12:12 16:4,5,7,18 18:19 21:19,23 22:1,15,16 25:15,16,21 26:14,15,23 29:4,24 31:13 34:3 35:19 36:11 38:2,5,6,8,16 39:17 41:13 45:24 46:25 47:8,16,17 48:9,10,12,23 49:12 50:20 51:15,21,21 52:16 56:16 57:6 58:15 59:7 60:6 62:14 63:6,19 64:21 67:20 68:13,17 74:2 79:11 81:8,13,23,25 82:3,7,10,20,22 83:2,5,7,9 87:24 88:10 90:3 94:21 96:14 97:12 118:8,17 119:5,12,19,21,22 138:5 142:25 143:20 144:11,12,18 145:8,8,9,12,19,22 147:13 149:22 150:6,7 152:20 153:12,15 154:17 186:15 196:6 203:3 224:18 225:1,6,9
buildings (6)
27:17,19,22 83:10 145:3 146:15 built (7) 80:24 123:23 125:13 129:8 202:20 203:8 221:23 bull (3) 177:17 178:22 188:10
bullet (1) 101:12 business (1) 129:8 butted (1) 167:14 buy (1) $64: 1$
calculated (2) 11:15 19:14
call (10) 8:3,17,24 12:16,21 117:19 120:24 177:6 199:20 212:17
called (10) 5:3 12:19
33:18 37:9 64:17 73:12 99:2 165:5 211:22 226:24 calling (1) 75:11 calls (1) 183:15 came (14) 8:1 22:20 24:10 106:7 112:2 119:7 148:2 160:22 164:12,25 176:5 186:10 212:1 225:9 camera (1) 36:19
cannot (3) 99:20 112:2,7

201:7,9 209:5 214:18
chances (1) 214:22
change (11) $71: 17$ 75:2,18,19,25 133:10 187:9 188:20 204:21 205:4 218:20
changed (10) 51:17 105:3,10 137:3 140:25 187:7 197:20 201:4 205:20 215:19 changes (1) 198:6
changing (3) 156:22 188:14 197:22
channel (1) 164:21
charge (1) $25: 1$
chart (1) 71:4
chase (3) 212:25 214:7,9
chatting (1) 151:8
check (14) $7: 3$ 31:1 48:7 54:19 78:25 79:2 88:20 123:17 133:14 150:8 154:17 190:5 214:14 221:14 checked (9) 7:4 48:20 56:17 58:20 79:10 190:8 211:10,10 217:10
checking (2) 79:8 222:3
checks (3) 58:12,14 62:11
cheers (1) 205:7
chelsea (1) $224: 8$
cherrypickers (1) 72:21
choice (4) 26:10 114:13
141:15 181:11
choosing (1) 141:22
chose (1) $148: 1$
chris (6) 212:18 213:20 217:6 218:17 219:3 229:5
chronologically (1) 123:9
cill (14) 65:15 105:21 109:25 110:2,3 128:8 160:23 162:6 163:15,15,18,20 170:8 201:3
cills (5) 109:6 110:8
113:24 168:12 169:20 circumstances (2) 78:7 105:9
cladding (16) 4:15 5:16 6:6 30:2,19 31:3 50:2 54:24 57:23 77:11 79:23 80:6 82:24 83:3,8 167:15
clarify (2) 67:5 77:3
clarity (1) 189:14
class (6) 29:11,12
153:21 154:4,25 155:1
classed (1) 39:7
classification (2) 153:21 154:9
clause (1) 167:7
clean (1) 87:4
cleaning (1) 91:2
clear (27) 1:24 13:7 14:15 24:10 36:20 40:20 45:12 46:4 48:11,22 81:23 82:2 83:5,6 92:3,4 100:10,24 106:3

123:19 161:2 164:10 173:5 182:12 192:5 194:7 196:10 clearly (3) 5:12 109:4 200:12
clerk (9) 78:19,21
219:10,20 221:21
222:8,20 223:2 224:25
client (9) 23:4
25:14,14,19,20,22
143:20 200:25 230:2
clients (1) 41:2
clifton (3) 204:15,17
205:15
climb (2) $85: 15,16$
climbed (1) 85:24
climber (9) 36:1,3
52:24 68:15,16,20
85:17,22,23
climbers (11) 25:25 45:22 52:23 62:13 68:12 72:21 80:16,19,21 84:1 85:15
climbing (2) 84:1 86:2 clipped (1) 85:25 close (6) 68:19 111:15 126:10 171:18 176:10 189:11
closed (4) 60:25
61:10,17 162:17 closely (1) 215:11 closer (1) 181:22 closing (1) 181:17 code (1) 137:13 coincided (1) 61:8 cold (1) 226:12 cole (20) 106:23 107:1
110:16 112:12 119:25 121:15 148:12 151:23 204:18 211:3,6 212:24 215:15,16 219:14 220:20,23 221:10,20 229:5
coles (3) 111:20 218:11 221:8
collaboration (1) 117:16
colleague (1) 98:4
colour (1) 37:12
column (8) 42:11
49:11,11 125:7 162:25
172:10 216:6 223:23
columns (18) $35: 1$
36:9,22 39:22
49:13,16 51:15 52:4,12 61:7,9 67:3,7,11,15,19,22 161:17
combination (5) 100:7 127:7 171:25 193:25 211:12
combustibility (7) 27:15
146:2,4,20 152:3 154:2 189:22 combustible (6) 17:25 96:11 155:3 170:2 172:1,21
combustibles (1) 170:9 come (47) 9:6 16:15 21:17,18 22:8 23:5 27:5 29:9 44:7 47:17 48:7,18 50:21 58:7,13 62:3 66:6 67:15 69:23

71:17 87:13 88:13,23 91:4 96:16 103:6 104:20 105:9,12 106:22 117:14 121:23 127:1 133:2 134:13 141:14 144:22 146:17 171:16 190:19 196:8 203:3 204:8 223:10 228:9,12 229:4
comes (4) 11:19 156:1 188:25 198:19 comfortable (2) 1:10 91:17
coming (12) 1:16 3:20 48:14,15 90:17 91:22 93:20 98:13 114:10 186:15 208:10 230:15 command (2) 82:9 143:19

## comment (6) 104:2

 108:20,23 126:24 155:16 189:14comments (6) 79:19,21 84:5 193:4 216:12,20 commercial (6)
28:1,2,7,16,17 29:1
committed (1) 197:4
communal (2) 130:7 176:22
communals (1) 219:23 communicate (1) 8:10 communicated (1) 84:16
companies (2) 7:9 9:3
company (22) 5:3
6:14,15 9:11 14:3
28:10 37:6,9 41:9
42:24 43:14 69:13
75:1 94:19
95:1,12,13,19 99:2
108:15 129:10 173:15
companys (2) $37: 11$ 95:17
compared (3) 38:10 52:5 177:24
comparison (2) 101:19 156:13
compartment (8) 61:8 148:18 149:15 168:19 170:3 174:2,19,23
compartmentation (11) 96:11 114:19 131:2 173:20
174:1,5,9,15,16 175:5,16
compartmented (1) 151:20
compatible (1) 17:9 competence (1) 69:18 competent (1) 69:25 competitive (2) 9:2 11:23
compile (1) 10:19 compiled (1) 225:14
complain (1) 87:6 complained (1) 227:7 complaints (6) 83:12,19 208:2 225:11,25 226:17
complete (7) 16:2 56:17
62:25 76:12 83:25
85:14 104:9
completed (8) 59:5 69:2

180:22 204:4 211:19 212:23 214:7 216:10 completely (11) 41:8 46:12 49:12 50:12 59:8 62:23 99:4 195:4 202:14 203:4 218:12 completeness (1) 133:1 completing (2) 185:20 207:1
completion (2) 152:2 226:18
compliance (5) 26:22 138:13 143:15 152:19 153:14
compliant (3) 26:14,19 83:8
complied (1) 176:14 comply (7) 64:20
137:8,11,20,25 138:10 139:3
components (2) 108:7 204:10
composite (1) $30: 5$
compound (1) 35:18
compress (2) 51:9 183:9 compressed (3) 61:12 65:2 160:15
compressible (3) 167:9 168:13 169:15
compression (14) 50:12,19 51:1,6 113:25 123:5 127:20 132:5,17,20 159:8 164:20 181:25 182:3
comprise (2) 61:18 83:19
compromise (1) 210:25 compromised (1) 204:4 concentrated (1) 47:7 concern (8) 118:18 150:3 161:1 170:5 177:23 178:9 218:10 227:3
concerned (10) 18:18 54:13 77:7 110:1,4 113:19 177:8 195:12 200:12 220:24
concerning (1) 142:5 concerns (11) 29:18 83:17 84:16 151:12 178:25 179:1 198:4 217:1 227:9,10,12
concrete (9) 22:2 51:18 61:2 162:6,8 163:20,24 172:10 193:1
condition (1) 200:2
conditions (8)
136:17,20,21
137:18,21
138:15,19,22
conduct (2) 84:15 95:4 conducted (1) 81:5 confidence (1) 105:7 confident (1) 103:4 configuration (4) 116:10,20 118:1 197:23
configured (1) 120:1 confirm (7) 2:21 3:4 82:25 92:13 93:12 97:19 229:12 confirmed (1) 36:2
confirming (2) 12:16 185:1
connection (1) 159:13 consequences (2) 53:20 151:3
consider (10) 18:12 27:13 57:17 149:10,13 150:12 168:8 170:1 171:24 172:3 considerably (3) 123:22 183:7 201:21 consideration (5) 114:16 153:16 175:18
182:13 184:15
considered (1) 201:6 considering (1) 122:18 consisted (3) 15:23 105:19 211:20
constantly (1) 104:18 constraints (1) 199:3
constructed (3)
133:19,25 134:3 construction (11) 61:11 71:7 94:1,19 95:15,15 96:10,20 97:7 173:15 174:11
consulted (1) 15:2
contact (1) 215:13 contacted (1) 148:8 contains (1) 44:18 contemplating (1) 127:5
contents (6) 2:11,21
3:4,16 92:13 93:12
context (3) 102:6 146:7
202:1
continuation (1) 182:5 continue (2) 143:11 144:21
continued (1) 145:18 contract (6) 13:4,8
100:1 135:20 138:22 165:7
contracting (1) 15:12 contractor (10) 16:10,24 17:2,3,5 94:22 117:18 131:16 155:23 214:9
contractors (1) 30:18 contracts (7) 13:10
15:7 77:21 94:9
98:18,21 211:13 contractual (2) 15:8 135:16
contrary (1) 185:21 contribute (1) 210:20 control (31) 47:17 48:10,12,23 81:8,13,23,25 82:3,7,20,22 83:2,5,7 87:5,24 88:10 138:5 143:20 144:11,12,18 145:12 147:13 196:6 197:7 224:18
225:1,6,9
controllable (1) 198:12 controlled (2) 198:25 209:14
convenient (1) 64:13
conventional (1) 61:10 conversation (14)
55:6,8 77:2 79:6 88:7 99:25 100:22 117:11

120:19 121:3,4,7 217:9 220:23
conversations (6)
55:1,5 106:6 146:8
152:23 203:15
convince (1) 198:11
copied (5) 83:15 191:18
192:11 199:17 221:6
copy (1) 199:21
copying (7) 101:8
123:12 135:25 140:5
191:17 204:17 225:13
core (8)
33:1,6,9,14,17,24 34:3
95:1
corner (3) 61:8 77:17 215:24
correct (62) 4:5 6:19
8:6 10:7,14 11:1,24,25
daytoday (1) 211:14
daywork (1) 69:11
deadline (1) 180:4
deadlines (2) 218:25 219:5
deal (6) 16:14
115:18,19 149:23 186:17 207:6
dealing (3) 4:10 115:9 194:3
deals (1) $170: 6$
dealt (3) 17:16 19:6 115:20
dear (2) 123:15 204:19
december (2) 92:20 93:2
decided (4) 16:18 23:8 178:1 179:5
decision (5) 112:24 113:2 148:6 175:23 179:9
decisions (2) 171:1,3
deck (1) 180:9
decorative (2) 120:8,11
decrease (1) 79:24
deep (1) 181:17
deeper (1) 179:18
defects (4) 81:17,18 180:23 225:15
defensive (1) 199:22
definite (2) $38: 15$ 194:20
definitely (6) $33: 5$ 170:16,21 171:14 187:17,24
deflect (1) 178:5
deformed (1) 157:23
deforming (1) 170:15
delay (1) 103:23
delayed (1) 200:23
delays (1) 79:25
deliver (2) 105:7,8
delivered (1) 37:10
deliveries (3) 35:16 37:15,17
delivery (4) 37:6 43:12 44:2 104:23
demand (1) 80:22
department (1) 90:7
departure (1) 215:9
depend (1) 4:13
depending (6) 38:4 52:23 128:22 137:3 156:11 168:24
depends (3) 41:1 153:5 169:12
depth (2) 97:4 118:12
describe (3) 6:13 116:16 120:5 described (1) 211:23
describing (4) 105:15 106:3,21 111:3
description (3) 111:2 125:8 225:21
design (24) $32: 141: 8$ 65:17 96:10 101:16,21 102:22 115:24 116:2 117:14,23 118:19 119:25 131:16 134:6,17 138:3 143:2,19 144:7 145:11 150:15 151:17 155:22 designed (2) 61:16

166:9
designers (1) 30:17 desk (3) 2:1 93:16 221:14
detail (12) 32:14 103:6
128:11 130:16 131:17 141:7,14 153:9 156:2
182:6 183:1 184:25
detailed (1) $38: 18$
detailing (2) 145:17
218:13
details (12) 8:19
71:2,9,14
72:3,12,13,23 82:24
83:2 156:1 197:1
determined (2) 174:5 175:10
development (1) 173:21
deviance (1) 51:20 devices (1) $62: 9$ diagrams (1) 65:7 diaries (1) 102:10 diary (1) 70:10 didnt (76) 15:1,2 17:4,22 18:3,17,20 20:1 21:18 29:18 30:10 31:1 33:17 35:8,19 39:5 40:22 41:12 42:15,16 47:11 48:20 53:25 56:5,23 58:6 60:11,18 62:20 63:1 65:11 70:10 75:12 76:8 77:5 90:3 111:17 115:5 126:21 131:11 133:10 141:9,10,18 143:1 145:24 149:12 152:15 154:6,16 155:17 159:14 160:18,23 162:8 166:24 168:18 175:12 176:12,15,15 179:21 180:22 181:12 187:17,18 188:21,23 190:5 195:6,20 203:4 214:7 218:2 219:8 222:24
differ (1) 202:22 differed (1) $32: 13$ difference (8) $32: 18$ 37:6 62:25 68:7 69:23 125:1 151:15 168:20 differences (1) $32: 20$ different (70) 1:21 4:11 9:7,8,8 10:5 28:10 31:9 33:3 34:23 37:6,12,12,17 38:8,9,16,16 40:12,14,23 41:4,8 43:19 44:7 46:12 47:4 54:17,18
62:5,5,22,23,23,24 69:22 72:18 88:9 90:6 92:1 102:15 106:16 107:11 112:16 113:14 126:4 130:15 133:18,24 141:1,8 143:6 151:14,16 153:12 169:9,9,11 174:20 177:16 178:20 179:1 180:12 182:25 197:20 202:14 208:19,22 213:13 218:12
differently (3) 151:1,4,5 difficult (10) 84:3 103:19 117:3 183:7 205:17 206:15,21
208:20 219:24 226:4
difficulty (2) 1:19 91:24
dimensions (1) 51:17 direct (3) 97:6,7 144:15 directed (4) 98:16
150:17 174:6 175:10
directing (1) 175:13
directive (1) 149:20 directly (2) 56:23 84:17
director (4) 94:3
95:5,11 211:13
directors (2) 6:14 96:4
disaster (1) 200:5 disciplines (1) 208:19 discuss (7) 27:7 56:23 120:24 131:20 150:13 171:20 229:25 discussed (18) 3:19 12:23 13:16 21:3,15 22:4 56:11 93:19 112:8,17 113:1 114:13,22 115:15,23 124:8 156:18 209:6
discussing (3) 49:25 116:1 195:16
discussion (9) 15:18 114:16 115:1,25 134:6 144:8 156:17,19 171:21

## discussions (17)

13:17,20 26:21 27:1,3
33:23 56:14,14 65:20
83:6 111:24 134:24
135:6 136:5 142:1 155:15 216:1
dislodged (1) 109:24 dismantle (2) 110:16 125:15
disregard (1) 86:14 disrupted (1) 202:18 disruption (2) 150:20 202:11
disruptive (1) 199:8 distinction (4) 40:24 43:18 46:5 73:24
distinguishing (1) 45:7 distributed (4) $35: 18$ 37:25 38:7 57:14 dividing (1) $174: 1$ dixon (19) 91:1,13,15,16,22 101:14 115:13 121:22 122:12 129:13 171:5 190:18 191:5 220:19 228:4,20,24 230:14 232:4
document (27) 9:13,24 10:9,12,16 12:1 13:8 30:8 64:18 65:4 77:12,18 103:11 128:14,17 130:10,13 136:23 144:25 148:15 165:15 189:8,25 191:14 202:7 222:4 226:22
documentation (1) 108:13
documented (1) 166:15 documents (7) 15:8

81:9 100:17,23 124:21 136:16 171:2
does (26) 10:4 29:19 31:1 37:14 39:4 41:11 56:13 57:7 67:5 72:12 76:18 81:12 86:21 99:1 107:20 115:4 124:6 128:19 129:1 138:6,12 166:3 182:20 187:9 223:5 224:9 doesnt (11) 130:22 137:23 138:6 140:18 147:1 159:12 164:14 167:24 180:1 199:22 202:17
doing (40) 6:7 17:10,11 18:4 25:18 42:8 44:6 52:13 54:10 62:13 65:25 86:2 100:11 113:12,21 118:1 124:12 135:3 138:16 144:6 147:4 154:20 184:7 186:11 190:14 192:22,24 196:9 197:21 198:7 201:14 203:9 206:9 211:7,11,14 212:24 216:17 221:25 222:2 done (99) 6:8 13:22,24 15:17 16:9 17:9,12,12 21:9 22:25 23:15,18 27:18 31:10 34:7,11 41:21 45:20,23 46:9,23 47:8,15,16 48:6 49:9 51:2 52:10 55:9 56:3,15,18 57:4 60:13 63:4,5,17 65:17 67:14 68:10,13 72:17 76:25 77:1 79:1 80:17 82:25 89:22 90:4,6 97:14 103:1 106:25 108:8,10 113:3 115:17 117:10 119:14 126:1,3 141:5 143:2 146:16 147:6,15,19 151:1,4,5 153:18 157:1 159:4 162:17 163:1 168:16 173:3 180:8,8,9,21 184:24,25 186:20 189:15 192:6 194:22 197:3 204:7 206:19,19 210:15 214:19 215:4 218:3,15,18 221:17 227:18
dont (73) 7:18,19 15:1 25:22 32:10 33:4 36:18 38:15 44:16 48:14 54:16 55:1 64:2 74:23,24 75:6,7,10 76:20,21 78:18 79:4,6,8 80:10 84:23 85:21 86:5 87:3,11 89:3,4 97:19 102:7 104:5,21 105:1 107:20,22 108:23 113:22 114:15 119:17 122:2 134:22,23 135:15 142:14 144:15 166:8 169:12 172:15,25 176:8 179:11 180:17 181:2 187:24,24 190:21 193:5 196:3,18 204:2

205:18 206:4 207:3 218:3,23 221:24 224:12 225:2,3 doors (2) 4:15 133:8 doublecheck (1) 20:2 doubleglazed (1) 16:23 down (47) 1:10 9:16,22 10:4 11:20 22:4 33:13 40:2 43:17 44:7 52:2 66:12 70:10 72:19 75:25 77:20 79:20 90:8 91:17 101:12 102:8 103:14 109:7 110:3 132:7,7 139:3 140:2 154:9 156:1 158:10 160:25 163:7 164:9 178:24 180:19,23 183:4 184:1,12 207:4 209:17 214:16 223:22
229:13,22 230:5
downstairs (1) 25:17 downwards (1) 52:16 dozen (2) 112:16 122:21 dr (13) 57:18,24 59:16,20,25 60:1 61:22 64:7 157:6 161:8,13 172:17,21 dramatically (1) 140:25 draughts (2) 226:1,6 draughty (1) 225:23 draw (1) 46:4 drawing (7) 31:7 34:12,13,17 42:6,12 155:19
drawings (23) 21:22 31:6,9 34:8,9,10 42:5,14,18 65:11,12 120:1 123:18 133:15,18,24 134:1 135:12 174:6,24 175:1,11,13
drawn (2) 43:19 168:17 drop (2) 180:19 198:9 dropped (1) 86:7 dropping (2) 84:1 86:4 drylining (15)
94:16,20,22 95:1,20 100:2 135:21 136:1,6,15 137:18 165:11,14,18,19 due (7) 13:5 16:17 19:11 123:23 201:22 204:4 209:24 dumb (1) 207:4 during (14) 17:2 26:21 27:16 72:1 78:16 79:17 82:3 83:1 99:25 106:7 150:9 185:20 214:3 216:21
duties (1) 222:3
duty (2) 139:3 187:25
e (8) $134: 7,10,13,24$ 144:8 147:13 154:25 165:4
e3317 (1) 9:25 earlier (9) 142:9 147:22 172:19 185:7 192:5 194:10 209:25 217:9 229:14
early (7) 40:21 119:15 135:8 191:13,21 226:11 229:1
easier (8) 102:18 116:13 120:23 121:12 159:17 197:5 202:9 209:14
east (4) $36: 14,17,21$ 80:18
easy (1) $170: 24$
edge (8) 45:10 50:13 61:19 109:9 130:4 162:6,25 177:18
edges (3) 57:22 65:15 111:8
edpm (1) 110:22
effect (2) $55: 7$ 83:8
efficiency (1) 204:12
efficient (1) 207:9
efficiently (3) 207:12 209:10 210:6
either (17) 15:8 28:18
escaping (1) $168: 19$ especially (1) 208:21
essence (1) $29: 19$ establish (1) 6:5
established (2) 13:6 189:19
etc (3) 101:21 174:4 208:13
euro (1) $155: 1$
european (3) 153:21 154:9 169:10
even (15) 21:22 102:8 122:25 123:21 133:19 134:10 146:13 162:2 187:11 188:9,10 194:10 201:20 210:5 225:8
evening (3) 187:2,3,21
event (4) $53: 11,16,24$ 184:23
events (1) 197:14 eventually (3) $80: 18$ 86:16 109:23
ever (136) 6:5 13:16 14:22 15:6,8,18 17:2,6,18 18:12 26:7,20 27:3,5,7,13 29:11 30:8 31:15 32:5 33:20,23 41:18,19 42:2 44:13 49:19 54:12,13,22 55:12 56:23 58:5 59:6 60:9 64:23 65:1,4,20 71:11 76:7,9 77:5,12 78:4,19,23 79:16 80:9,12 81:17,20 82:2 83:1 84:16,19 85:1,8,15,21 86:13 93:16 96:5,19 108:12 117:25 118:2,18,25 119:3,11,25 133:14 134:1,5,13 135:5,12 138:14 144:8 146:4 148:20 149:10,13,17 150:8,12 152:12,16 153:14 154:16 155:17 156:17,19 163:1 165:9,20 166:21 167:20 168:7 169:15,22 170:1 171:15,20,21,24 172:3,14 175:24 176:2,4 179:11 184:15,19 185:3,4 188:12,15 196:10,16 207:13,15,17 210:20,24 211:6 220:10 222:8,10 224:18 225:6,17,25 226:16 227:12
everglaze (2) 103:22 191:23
every (30) 38:9 59:8 70:13 72:17 106:18 117:8,18 131:8 133:21 137:23 138:2 139:1 156:5 176:6 180:21,21 181:4 190:8 193:3 196:4 198:19 199:9 202:5,15,16 214:1 215:10 223:2,7,7
everybody (22) $37: 25$ 98:14 104:19 113:3,5

129:1 131:12
143:21,22,24,25 144:5 147:7 151:4 153:18 154:19 155:16 176:6 196:8 201:1 213:18 222:18
everybodys (1) 210:16 everyone (5) 1:3 48:21 55:18 182:5 199:21 everyones (1) 39:8 everything (13) 1:23 14:1 16:16 46:23 110:10 138:1 139:1 166:7 201:2 207:4 223:4,6 226:13 evidence (38) 1:5,17,24 3:9,19 9:1 13:7 39:4 40:22 54:1,3,21 58:8 59:9 66:8,25 81:12 90:17 91:23 92:4 93:19 112:23 114:12 122:3,18 141:17,23 142:10 144:15 155:6 190:22 191:11 192:5 194:17 195:24 215:7 229:1 230:16 exact (4) $8: 2288: 7$ 105:5 114:9 exactly (18) 5:8 16:12 19:22 39:14 43:7 55:23 70:5 80:24 100:17 101:23 107:6 108:15 116:22 143:13 147:7 169:8 181:15 219:7
examine (1) 176:13 example (20) 27:23 28:5,22 32:22 42:15 52:6 53:21 57:3,19 96:10 105:16,19 108:21 110:16 116:12,13,14 118:1 158:18 217:3 examples (1) 60:9 exceed (1) 124:18 excel (1) 9:23 excess (1) 217:15 exercise (5) 24:3,11 47:22 48:13 57:8 exhibit (1) 93:3 exhibits (1) 92:23 existing (11) 16:9 125:10,11,23 132:9 145:8 164:15,19,19 189:10 193:19 expand (1) $53: 18$ expanding (5)
172:6,8,14,21 173:6 expect (3) 42:4,5 131:17
expectation (1) 131:11 expected (2) 10:15 14:2 expecting (1) 177:12 expensive (3) 103:21 166:14 203:24 experience (13) 4:21 14:20 31:7 41:12 93:24 131:14 140:17 203:18,21 211:23,25 212:4 214:8
experienced (4) 77:23 78:1 140:17 173:15 explain (10) 46:11 62:4

63:25 73:24 86:10 95:11 132:5 139:14 192:21 197:10 explained (17) 8:11 14:22 45:22 48:15 51:13 56:2,18 58:24 63:5 68:11 105:22 108:2 186:7 206:20,23 229:8,14 explaining (3) $56: 7$ 138:9 199:19 expose (1) 181:4 exposed (6) 34:4
111:17 166:2 188:17 223:13 224:23 express (1) 196:11 expressed (1) 104:13 extend (1) 49:8 extensive (2) 49:5 64:16 extent (1) 176:14 exterior (5) 26:14 39:16 89:23 90:2 135:4 external (5) 4:9 53:7
79:23 146:1 148:18 externals (1) 219:23 extra (12) 19:11
21:20,24
22:3,5,9,13,20 74:24 80:12,15,20 extracted (1) 165:13 extracts (1) 165:9 extras (2) 21:3,14 extremely (1) 199:25 eye (2) 68:19 117:7
f(5) 153:21,21 154:4,9 169:10
faade (2) $38: 23$ 50:4 faades (6) 4:10,12,15 5:16 24:15 115:7 facades (1) 13:5 face (10) $36: 11,14$ 37:22,23 44:24 61:18 153:2 162:5 195:6 202:4
faced (1) $168: 11$ facer (1) $158: 16$
faces (1) $38: 2$
facia (1) 129:21
facing (2) 60:5 61:2 factor (1) 104:23
factory (1) $5: 23$ fail (1) 208:13 failed (1) 210:10 faint (1) 5:12 fair (12) 29:9 35:21 58:18 62:4 76:20,25 80:9 85:19 90:4,10 210:14 230:4
fairly (4) 2:10 52:14 66:2 103:4
fairness (1) 228:24
fairview (1) 103:22
fallback (1) 138:3 fallen (3) 138:21 157:25 158:16
falling (1) 114:6
falls (1) 138:6
familiar (1) 167:22
far (24) 7:2 16:10 17:15 22:16 23:15 26:8 36:3,10,15 38:4,7

41:16 49:7 50:23 58:22 68:3 79:2 102:7 104:23 113:19 152:1 192:23 195:12 224:18
fascia (10) 105:20,25 106:11,17 110:19,22 112:7 171:9 186:2,6 fast (2) 129:13 182:8 fasteners (1) 167:16 favour (1) 102:12 february (6) 60:20 102:4 115:13,16 135:24 136:11 feedback (3) 82:6 210:7 220:10
feeding (1) 83:22 feel (1) 202:17 feet (3) 196:25 197:11 218:15
fell (2) $98: 12$ 216:17 felt (1) $210: 22$ fetch (1) $91: 5$ few (19) 19:4 24:17 34:22 68:23 75:5 84:2 95:10 101:16 102:21 104:16 107:17 123:20 124:3 128:22 132:4 142:1 157:4 178:8 208:25
fibre (1) $50: 13$

fight (1) $167: 14$ figure (20) 10:19 11:13 19:11,14,16,16,18,20,22,25 148:22 149:18 150:5 | 60:1,23 124:21,25 | $173: 20174: 15,16$ |
| :--- | :--- | 157:8 160:7 161:14 163:6,17 172:19

figures (8) 10:16 11:20 20:6,12,20 124:13,17 158:8
fill (23) 40:18,25 43:21 53:18 61:25 139:18 157:18 159:14 160:24 169:16 172:9 173:2 174:12 175:17 178:4 183:14,14,15 184:4,5,6,8,9
filled (7) 46:25 49:11 126:11 162:15,16 172:22 220:4
filling (3) 10:20 50:12 114:17
final (13) 2:5 25:8 66:3 213:6,8 216:17 221:25 222:4,21,23 223:11 225:11,23
finally (2) $163: 15$ 196:19
financially (1) 204:11
find (8) 9:6 89:11 123:15 141:21 189:3 196:25 197:5,11
finding (4) 18:23 61:24 182:2 210:4
fine (7) 48:19 93:12 97:20 196:8 207:5 229:7 230:10
fingerprint (1) 70:14
finish (14) 16:24 66:1 105:23 108:3 115:10 118:23 120:12 176:10 178:18,18 203:1
214:18 224:1,7
finished (14) 59:8 60:21

177:11 179:2 180:5,11 $\quad$ 6:18 73:20,25 74:1 182:7 213:9 214:12,15 75:20,22,24,25 222:20 223:9 224:1,2 $\quad$ fitters (37) 1:5 7:10 | finishes (2) 213:5 | $45: 16,1846: 451: 8$ |
| :--- | :--- | 224:10

finishing (3) 99:22 116:10 229:13
fire (65) $5: 19$ 18:12
26:15 27:4,7,15 29:12 33:23 39:22 40:3 43:17
53:6,7,9,11,16,17,24 60:22 61:22 65:5,15 70:20 82:24 84:5 96:9,11,20 114:20,22 119:1 130:23,23 131:23 140:12,15 141:10 144:25 147:1,1,3 148:17 149:10,14,18 152:13 154:4,7 168:18,21 169:23 170:2,3,7,18 172:3 174:3,10,11 176:13 184:17,19,22,23,23 firebreak (1) 39:12 firebreaks (4) 39:7 47:1 58:16 83:3
fireproof (3) 170:10 175:17,20
fireproofing (10) 139:7,12 140:19 $148: 22$ 149:18
173:20 174:15,16 175:6
fires (1) 149:23 firestop (2) 40:17,18 firestopping (3) 65:22 139:7,11
firestops (3) 40:5,11,11 firetherm (1) 149:9
firework (1) 215:5 firm (1) 185:25 first (60) 2:3 3:23,25 6:12 19:16 20:5 26:11 36:25 37:1,10 38:10,20,20 43:24 44:2 45:20 47:7 50:1 52:16 55:9 60:2 63:11,19 67:14 71:18 75:6 80:18 82:20 86:16 89:22 90:4 92:19 93:23 95:10 99:8 103:13,17 104:4 107:14 113:12,13,23 125:10 133:3 140:6 147:20 151:7 157:6 171:10 187:10,16 188:8 192:7,12 194:6 198:16 201:17 202:15 206:22 208:6

## fit (10) 50:22 74:1

 125:20 131:11 132:20 141:21 170:21,22 186:21 203:20 fitted (21) 24:8 45:23 50:11 51:5,9,11 54:9,14 55:10,15 63:11,19 65:12 68:9 83:9 142:7 161:7 177:23 179:19 217:10224:3
fitter (11) 4:3,6 5:21

185:2 202:8
followed (4) 65:11
208:22 216:1,15
following (11) 31:6
83:18 100:3 116:8
118:10 133:2 137:9 140:10 185:13 205:13 220:23
follows (1) 174:9
footpaths (2) 84:2 86:4
force (1) 132:15
forced (2) 76:9 78:7
foresee (2) 168:18
202:2
forklift (1) $35: 16$ form (9) 50:25 65:22 130:11 134:17 149:18 152:25 170:18 172:14 173:6
formal (10) 4:24
5:14,18 13:4,10 15:8
143:10 155:7,10,17
formally (2) 155:19

79:25 82:24 83:2 111:13 120:19,25 121:3 132:23 136:4 151:10 216:20 219:3 227:3
fussed (1) 177:18
future (1) 204:22
gain (4) 125:24 126:10 189:11 207:16
game (2) 207:2,3 gap (49) 22:17 23:8 46:14 51:16 52:25 53:18 58:25 109:20 110:20,20 111:7,15 112:5,14 118:8,12,18,24,25 119:5 126:6 128:11 157:18 158:12 159:11 160:14,16,18
161:22,24
162:5,13,14,15,16,17,24 163:2 164:11,13 172:9,22 173:2 177:14 181:21 183:7 184:16 185:24
gaps (26) 22:23 24:12 53:22,24,25 54:2,4,9 57:22,23 114:17 130:2 131:20 160:21 167:9,14 169:16 174:12 175:17,19,20 185:3 220:3 225:22,25 226:6
gary (3) $213: 19$ 215:7,13
gasket (1) 110:22
gauge (1) 19:25 gave (12) 2:23 15:16 38:23 54:22 116:25 125:19 126:7,19 170:5 173:11 186:14 208:18 gellard (1) 211:22 general (7) 30:14 94:21 96:14 122:24 154:8 229:23 230:6
generally (4) 40:23 53:4 142:24 219:12 generic (1) 130:13 gents (1) 199:18 get (57) $1: 24$ 15:1,2 30:6 36:19 64:1 67:14 71:11 75:3 77:16 80:15 82:6 86:15 101:19 105:6 114:5 117:13,20,22 121:23 123:4 124:13 126:6 129:9 131:14 141:22 148:9 163:23 169:14 178:19,19 180:4,10 182:3,5 183:4 187:22,24 196:10 197:19 198:9 199:9,22 200:13,21 201:7,10,25 202:12,13,13 203:2 206:15 210:15 214:17 218:5 222:18 gets (1) 180:6 getting (8) 43:12 47:8 109:6 176:8 199:7 207:6 210:6 221:4
give (28) 1:16 11:10 12:8 42:8 51:6 55:12 71:5 84:11 87:6 90:17 91:22 102:16 104:6 114:9 115:21 117:8 118:18 124:9 143:10 153:14 155:16 177:6 197:2 199:5 208:12 218:10 230:7,15 given (22) 30:21 45:16 55:24 59:20,21 62:16 68:7 96:6 98:15 100:24 118:2,22 136:10 170:23 174:10,20 175:19 182:14 184:15 192:10 195:9 214:4 gives (4) $10: 5$ 123:24 206:3 214:18 giving (7) 20:7 54:21 96:14 114:1 127:21 187:10 188:8 glass (9) 15:24 16:6,7,19,22 21:19 42:9 135:9 224:3 glazing (1) 4:16 glue (2) $159: 23$ 182:1 gobetween (1) 211:8 goes (2) 46:19 222:5 going (77) 1:4 8:19 15:9 18:3,23 23:18 38:8 40:6 42:9 47:8 59:19 66:5 67:6,20 75:20 86:2 87:22 92:17 96:8 97:1 99:7,10,13 102:7 104:5,7 107:12,22 109:18 110:12 115:13 117:7 118:21 121:22 124:10 127:1 128:10 130:3 135:13 143:10 153:9 159:8 160:25 166:22 168:11 181:14 182:8 185:8,12,12 187:15 188:12,14,20 189:20 190:18 191:6 193:6 195:4,5,5 196:4 197:2,16 198:16 200:24 202:4,12 203:24 204:11 205:16 206:14 207:15 209:13 213:17 226:20 228:8 gone (15) 38:1,2 79:13 104:14,18 111:8 115:18,19 118:20 141:20 142:4 153:3 166:1 202:4 212:10 good (19) 1:3 14:9 16:25 46:17 65:24 66:21 96:7 111:2 121:17 122:14 129:21 130:2 140:9 185:11 190:15 217:17 229:23 230:6,13
grade (1) 151:17 gradings (1) 169:9 gradually (1) 80:24 grahame (4) 1:6,8 75:4 232:2
grange (58) 1:6,13,15 16:8,12 19:3 64:4,11,15 65:24 66:15,22,23 88:12,15,18

89:10,13,18,19,20,22 90:11,13,24 91:1,6,11,13,19,21 121:17,20 122:6,15,16 171:5 180:14 182:12 190:10,14 191:9,10 192:19 193:9,13,23 227:19,22
228:1,14,16,22,23
230:11,25 231:1,11 grasped (1) 193:5 grateful (4) 90:18 228:16 230:17 231:8 great (3) 6:9 68:22 95:2 green (3) 44:23,25 158:22
grenfell (69) 4:20
6:4,20 7:25 8:12 9:24
10:3 13:22 14:22
19:10 20:16 21:2
30:11,22 32:13,17 41:13 43:25 44:24 50:19 53:3 64:15 65:10 69:16,17 70:20 71:12,15 72:2,24 73:5,10,14 74:6 77:13 78:2 81:18 95:4,21 97:17 99:13,24 100:2 101:9 107:3 123:16 135:21 136:1,7 139:12 140:6 142:23 146:5 147:4 149:14 165:5 168:5 174:5,14 175:7,10,18 176:22 177:1 193:24 212:2 215:21 225:23 226:25 grey (1) $77: 20$
grip (9) $178: 4$
183:14,14,15
184:4,5,6,8,9
guess (2) 149:21 156:1
guesswork (1) 102:9 guidance (20) 44:19 45:15 47:11 49:24 54:22 55:14 64:17 102:17 117:22 131:3 143:17 144:24 145:2,25 147:2 148:14 153:15 156:4,6 170:23 guide (1) 45:12 guided (4) 98:13 143:9 175:2 176:9
guy (2) 79:4 84:23 guys (6) 17:4,11 69:21,21 76:15,18
hadnt (7) 49:13 115:18 118:20,20 186:16 195:21 202:4 half (4) 112:16 122:21 197:16 206:5
halfway (2) 43:17 79:20 hallway (1) $18: 7$
hallways (2) 17:22 18:2 hand (1) 216:19
handover (1) 178:19
hands (2) 110:10 180:8
handwriting (1) 34:14
hang (1) 196:5
happen (7) 25:3 26:7 109:18 115:15 154:22 202:12 214:14
happened (13) 34:18 62:14,15 79:24 90:9 141:24 156:20 164:20 179:17 215:6 218:23 222:4 225:14
happening (3) 86:5 193:6 208:16 happens (2) 124:11 200:9
happy (15) 46:2 47:18 48:21,24 54:19 55:18 57:12 75:15 104:25 105:23 108:2 144:4 145:17 147:14 206:5 har00008991 (1) 41:24 har00010913 (1) 77:10 har000109132 (1) 77:18 har00013714 (1) 86:20 hard (1) 18:23 harley (45) 4:3,20 8:3,11 9:7 10:17 12:3,16 13:5,9 14:14,25 15:7,9,9 20:14 23:24 24:15 25:15 26:19 27:11 31:6,9 41:25 42:14 47:16,21 55:7,12 56:11,19,24 73:1 81:20 82:11,11 83:14 84:19 114:25 135:3 150:12 161:7,20 203:23 225:13
harleys (2) 77:10 103:20 harness (4) 73:3,4 85:24,25 hasnt (2) 101:15 200:5 hatching (1) 172:20 havent (2) 102:2 190:14 having (11) 42:18 45:4 55:6 56:13 78:5 100:1 150:12 187:16 200:1 208:17 210:13 hazy (1) 143:17 head (12) $35: 11$ 65:15 110:4,11,12 128:9 160:6,14 161:2,9 163:7,11
headaches (2) 197:2 199:5
headed (1) 70:21
header (1) 105:21
health (3) 83:25 85:14 86:14
hear (3) 1:4 90:18 230:16
heard (13) $23: 11,12$ 27:22 29:11 33:20 65:4 88:18 146:4,7,21,22,23 168:4
hearing (3) 1:4 56:22 231:13
heat (1) 227:7
heavily (1) 214:23
hed (3) 56:17 178:11 183:24
height (3) 29:24 143:3 203:3
heights (1) $38: 16$
held (1) 212:1
help (54) 7:21 11:15 19:13,18 21:14 22:22 23:14,20 24:23 25:11

29:1 36:11,14 37:21 43:24 44:13 45:15 46:16 49:5 50:17 52:8 58:7,11,19 62:2 63:7 71:20 80:5 87:23 89:22 90:1 99:1 102:3 105:3,11 116:22 121:9 122:23 124:16 130:9,21 149:5 172:7,23 174:13 175:18 182:10 183:14 201:23 209:22 211:23,24 219:17 225:5
helped (1) 212:7
helpful (11) 38:17 47:10
90:17 103:5 107:19 123:7 125:2 128:5 160:5 163:12 183:11 helpfully (2) $34: 6$ 161:8 helping (1) $74: 2$ hence (4) 111:18 123:5 226:12 229:11 here (37) 3:20 10:3 60:2,23 61:16 71:12 83:15 93:20 105:15 106:4,21 121:9 124:4 128:19 129:19 130:10 136:14 157:9,14 158:15,18 160:9 161:15,22 163:18 164:24 166:22 167:23 179:17 180:3 189:1 192:22 194:3 199:17 216:23 218:23 227:14 hes (5) 55:3 77:2 86:17 181:2 184:7
hi (5) 21:1 70:23 207:24
221:12 229:19
high (2) $57: 3$ 148:25 higher (1) 20:17
highlight (2) 57:18 131:10
highlighted (4) 60:3
126:24 162:4,24 highrise (2) 119:12,21 himself (1) 211:6 hindsight (2) $39: 8$ 156:5 hit (1) $150: 17$
hitting (2) 209:5 210:11 hoban (1) 231:2 hold (1) $74: 3$ holder (1) 31:25 holders (1) $30: 20$ holt (6) 212:18 213:20 217:6 218:23 219:3 229:5
holts (1) 229:18 honest (1) 214:12 honestly (3) 5:7 34:19 35:14
honesty (1) 180:17 hookon (5)
31:10,13,15,18 32:17 hope (2) 140:8 151:17 hopefully (5) 66:1 83:24 85:9 152:22 199:22 hoping (4) 73:20 123:22 201:21 202:23
horizontal (48) 39:16
40:3,5,11,16,24 42:22 43:20,20 44:3,21,23 45:7,9 46:5,7,13,15,19

47:1,1,7 48:4,5 53:15,22 55:18 56:3 57:20 59:22 60:3 61:15,25 62:10 63:3,8,10,14,18,23 67:1,6,11,16,18 68:8,10 88:1 horizontally (3) $53: 13$ 63:15 110:8 hospital (1) 31:19 hounslow (3) 13:25 27:24 41:6
hours (3) 123:20 202:15 223:13
housekeeping (1) 91:3 houses (1) 199:8 however (4) 14:13 69:5 177:19 212:23
hughes (3) 98:19 139:5 140:5
human (1) 86:6 hundred (1) 196:3 hung (1) 32:23 hyetts (1) 158:7
$\qquad$
input (1) 117:19
inquiry (17) 1:14 2:1,14
3:8 6:11 91:20 92:6 99:17 105:14 112:23 114:12 141:18 155:7 211:16 215:8 232:3,5 insert (1) 10:15 inside (16) 16:5,7,16,25 18:21 21:19 33:1,5 90:4,6 120:12 125:14 150:3 162:5 173:4 193:1
insinuate (1) 190:5
insist (1) 155:23
inspect (11) 47:18
48:16 59:6 115:21 131:8 142:16 185:10 201:1 212:16 223:11,12
inspected (11) 47:16 48:18 79:14 88:6,8,10 183:24 194:6,11 214:20 219:18 inspecting (12) 59:11 108:4 213:5,5,6 215:8,18 221:22,24 222:20,21 224:16
inspection (7) 60:21 78:10 79:16
82:14,15,19 223:17 inspections (18) 81:2,5,7,13,25 82:3,8 212:13,21 213:1 214:6,9 215:2 216:18 219:12,15 222:9,24 inspector (4) 47:17 78:14 79:11 82:10 inspectors (2) 48:9 225:1
install (32) 6:5,7 16:22 27:14 31:6,12 37:1 39:15 43:7 47:12 49:21 52:21 69:20 116:13 117:3 120:13 129:21 140:22 141:8 149:2 170:24 178:1 179:6,10 204:12 209:11 211:14,18 213:7,8,22 223:12

## installation (32)

4:6,21,25 5:15,19 26:19 30:19 31:5 32:2 44:19 45:17 46:14,15 47:25 49:24 57:19 58:1 59:12 69:6 77:11 101:18 102:23 108:4 120:24 121:13 132:2 167:13 187:20 203:11 206:21 207:19 222:22
installations (3) 5:4,4 77:22
installed (53) 10:4 23:4 30:4 31:2 32:21 36:8 43:4 46:24 47:13 49:3,4 50:3,13,18 52:4 57:20 58:13,14,21 59:23 60:3,5,12 61:1,7 62:5,10 63:8,15 64:19,23 65:1 67:2 88:2 99:23 110:18,22 114:25 118:7,9,16 119:4 120:24 148:16,21 149:1

179:11 181:3 185:3,4 196:19 212:11 223:9 installer (1) 32:9 installers (8) $30: 18$
31:24 62:8,17 68:6 69:18 173:7 210:21 installing (31) 4:14 11:2 27:5,8 28:17 31:7,16 32:11,22 33:8 34:2 37:1 38:23 39:11 41:12 42:25 43:10 44:14,19 52:1 57:3 58:25 63:16 146:14 149:6,11 172:4 177:13 180:25 188:21 210:2 instances (2) 129:6 193:11
instead (2) 75:22 79:23
instigated (1) 222:11
instructed (6) 4:19 8:1 45:16 116:9 152:1 171:15
instruction (4) 62:16 68:7 96:2 138:21 instructions (6) 30:20,23 31:2 54:22 55:24 137:12 instructor (1) 95:24 insulation (89) 6:6 17:25 28:5,7,15,16,20,24 34:22,24 36:4,5 42:10,16,19,23 43:1 46:19 47:2 58:15,20 59:1,12 112:4,8,13 113:25 114:13 126:7,12 127:6,11,14 128:7 130:10,11 132:5,13 141:19,21 142:12,18,20,21 144:1,9 146:1,10,15 149:2 152:14 153:1 155:3,8 157:15,18 158:15 159:10,20,22 160:15 162:14 164:11 167:3,9,16 168:22,22,23 169:6,16,17,23 170:2 172:1 178:12 180:16,18 181:10 183:8,19,24 185:3,23,24 186:4 188:8 194:8 203:20 intended (5) 53:10 61:9 169:19 170:22 195:3 intent (2) 136:6,15 intention (1) 195:8 interchangeably (1) 156:10
interest (2) 104:12,13 interested (7) 8:4 99:13 103:21 104:1 124:12 203:6 205:23 interface (7) 17:6 18:13 23:7 110:25 135:6 150:13 161:16 interfacing (1) 218:19 interior (4) 89:24 102:4 120:10 212:6 internal (11) 101:2,9 120:2 134:6 139:16 147:3 150:10 153:16 215:22 220:25 223:25

inte
14

149:20 (2) $27: 9$ internals (2) 149:21 219:23
interpretation (2) 143:6 145:15
interrupt (1) 192:20 interrupted (1) 52:22 intervals (1) 181:19 intimate (1) 150:14 intimating (1) 201:11 into (20) 10:16 16:21 21:9 23:15 53:6 76:9 96:16 97:7 104:15 132:23 134:18 148:18 159:10 160:16 166:9 197:15 200:14 202:3 217:25 220:19
introduced (2) 78:19,21 introductory (1) 96:25
intumescent (9)
40:15,25 41:5,16
53:17,19 60:5 61:1,18 investigation (1) 61:22 investigations (1) 61:23 invoice (1) 24:17 invoices (6) 19:21
20:2,5,14,20 24:15 involve (5) 4:6 96:9 113:9 132:6 174:10 involved (14) 71:22 77:19,21 86:11 95:20 107:24 119:11 134:10 139:14 148:20 150:10
171:3 176:8 201:1
involvement (5) $38: 25$ 39:5 40:21 97:21 175:21
involving (1) 191:12
ipaf (2) 72:19,20 irregular (1) 183:8 isnt (12) 12:15 40:7 93:25 129:23 130:9 135:18 170:12 178:6 180:7,8 199:23 216:25 issued (5) $30: 5$ 128:20,21,21 189:13 issues (12) 82:1 96:10 123:25 143:15 176:18 200:3 208:12 225:15 229:7,8,12,17
item (6) 24:23 39:23 106:17 125:8,10 177:11
items (1) 40:10 its (140) 1:17
2:16,24,24 5:2 6:14 9:9,16 10:3,15 12:15 14:10 19:17,20 36:16,21,22 42:10 49:25 51:17 53:9 58:12 60:4,20,21,21 62:14 65:17 69:13,22,23 70:20,20,21 73:10,12 74:4,4,12,21 77:19,21 80:5 83:23 84:24 85:8,17 86:23 90:17 92:7,19 93:2,6,25 99:9 100:24 101:4,8 103:9 107:17 109:16 115:14 124:10,20 126:23 128:1,2,18 130:13

135:18 136:1 140:3 141:8 149:9 153:2,3,10 154:2,4 157:14,15,21 158:15 159:10,12 160:14 163:9 164:16 165:5 168:1,3 169:1,2,3 170:6,12,21 176:9,11 178:23 183:6,15,16 184:9 191:15,20,20 192:5 196:15 197:11,13,25 198:18 199:8,11 200:9,17,18 201:7,9 202:25 203:21 204:15 206:24,24 208:20,23 209:7 214:9,11,21,24 216:25 219:24 222:2
223:13,18 224:8 226:4 230:16
itself (16) 12:12 22:14
33:6 40:17 42:12 49:9,13 51:18 53:19 57:11 62:6 73:5 79:1 108:25 157:12 226:3 ive (26) $45: 2$ 58:3,3 88:13 98:23 100:18 101:15,17 102:5,21,22 104:8,18 108:14 124:21 126:4 146:21 154:3 178:21,22 187:25 192:13
199:19,23 202:2,15 iws00001296 (1) 226:23 iws00012964 (1) 227:1
jamb (2) 157:10 161:12 jambs (2) 110:3 128:9 james (3) 204:15,17 205:15 january (2) 30:6 77:16 jason (2) 73:11 140:4 job (26) 9:10 10:20
11:9 12:4,17,23 13:18 17:11 40:10 52:11 54:10 70:1 72:16,17 76:9 79:1 87:5 181:5,7 197:16 200:17 203:25 206:17 207:14 208:11 217:19
john (3) 78:10 223:18 231:2
join (1) 157:12 joined (1) 94:15 joins (4) 109:3,8,8,11 joint (1) 177:13 jointly (1) 112:24 joints (1) 167:14 jon (7) 78:14,16 79:5 82:16 219:11,17 223:17
july (1) $215: 10$ jumping (1) 86:1 junction (1) 172:10 june (12) 2:16 69:3 82:16 204:16 205:14 206:8 207:22 209:17 220:16 221:10,15 223:18
k
kawneer (1) 5:3 kctmo (2) 224:1,6 keep (15) 1:22 5:11 18:23,25 74:17 75:22 92:2 117:8 151:14 181:10 191:5 196:2 203:4 205:23 214:21 keeping (2) 68:19 205:22
keeps (1) 132:17 kelly (1) $225: 12$ kensington (1) $224: 8$ kevin (1) 42:1 key (2) 10:22 147:17 kind (18) 9:20 13:17 41:12 44:13 94:25 98:10 102:15 104:23 105:5 125:15 140:24 148:24 194:21 198:15,24 211:8 215:4,5
kingspan (27) 28:18
35:4,10 36:6,8 37:2,3,13,15,18,21 42:17 142:20 144:2 147:25 148:2,6,10 152:7 154:25 155:9,20 156:9,12,18 158:18,21 kingspancelotex (1) 35:2
knew (11) 34:5 35:2,4 42:25 96:6 98:3 144:5 147:7 175:25 188:14 215:19
knocked (2) 214:23,23 knocking (1) 83:20 know (80) 4:18 7:18,19 11:10 12:9 15:1 17:4,8,11,15 19:21 25:22 26:8,17 28:16,22,24 31:5 32:8,10 33:4,8,11,17 35:5,8 36:21 38:7,15 42:1 43:6,10 45:18 57:2 64:2 75:3 76:21 78:16 79:7 85:20,21 89:24 90:6 97:16,22 98:4 99:12 101:6 105:1 106:11 115:5 123:19 124:4 133:2 135:3 141:18 142:18 150:21 153:20,25 154:8,25 161:23 167:25 168:20 171:8,10,10 180:17 189:5 203:23 206:7 213:24 214:1 220:2 224:6,12 225:2,3 231:7
knowing (1) 138:2 knowledge (18) 3:17 133:17,23 134:5,9,23 135:2 145:20,21 152:16 163:3 167:21 173:5,8 196:18 215:1 220:12 226:2 known (12) 6:21 9:9 98:20,24 129:9 150:24 151:3,6 152:25 165:2 203:22 225:8
knows (1) 101:23
label (1) 172:20 labelled (1) 161:8 labour (10) 7:10 73:14 74:12 76:7 79:24 80:15 203:8 205:3 208:8,14
lack (4) 83:25 85:14 104:12,13
ladder (1) 82:12
lady (3) 1:23 92:3 226:23
laid (1) 191:24
laker (2) 119:14,21
lamatherm (1) 61:14
lamb (1) 42:1
lane (3) 161:8,13 172:21
lanes (10) 57:18,24 59:16,20,25 60:1 61:22 64:7 157:6 172:17
large (4) 51:23 139:6 177:14,15
last (14) 39:23 79:20,21

159:9 160:14 162:13 180:13 203:3
locations (3) 61:15 142:13 190:4
$\log (1) 82: 19$
logically (2) $123: 2$ 198:12
london (2) 13:23 31:19 long (8) $26: 2$ 34:20 109:18 159:12 175:25 186:24 213:12 227:24
longer (4) 93:7,10 214:12,22
longest (1) 98:24 longevity (1) 109:22 look (124) 2:5,14 8:7,8 9:14,16 10:9 13:1 14:6 18:17,20 19:7 20:5,14 24:18 25:9,15,25 26:12 30:1 31:22 35:23 36:2 38:20,21 39:19 49:19,23 54:18 59:24 60:16,18 61:5 66:12 68:25 70:18 73:17 79:19 81:2,2 82:14,17 90:22 95:8 97:2,3,3
101:1,4,12,14,20 102:1,12 103:14 104:4,20 111:20,22 115:7 120:14,16,20 129:19 137:6 138:18 140:6 143:9 152:15 154:4 157:6,7 158:8,17 160:6,7 161:12,14 163:5,15,16 167:6,7 172:17,18,19 173:9,13,24 176:11 177:2,5,10 178:7 185:12,12,18 186:23 189:7,9 198:11 199:12,13 204:25 205:11 207:15 209:15,17 211:16 212:13 213:16,21 214:20 217:3,3,4 220:14 221:8 223:16,22 225:20 226:13,22 229:3 looked (33) 6:23 35:24 42:14 45:12 46:6 47:19 48:10 64:7 65:7 105:16 109:2 115:12 118:20 123:20 130:15 141:20 142:4 143:21,25 153:19 163:7 164:4 185:7,16 189:24 192:7 196:6,6,7 200:15 201:16 209:16 210:13
looking (30) 7:6 10:23 40:10,20 48:12 62:12 74:17 103:24 108:5,5 110:14 118:5 143:14 151:18 152:24 153:13 157:9,10,10 158:9,25 163:6,8 174:13 197:4 199:4 200:21 212:4 222:3 223:1
looks (5) 108:6 161:11 164:15 179:1 229:21
looped (1) 218:5
lorry (1) 37:12

losing (1) 206:25
loss (1) 206:10 lot (24) 37:10,10 40:5 103:17 109:3,7,8 124:10 129:6 130:16 146:14 176:7 193:16 198:10 199:11 200:20 202:9 206:3,16 209:14 210:6,7 215:5,13 lots (2) 42:23 109:11 lovely (1) 90:20 low (1) 80:24
lower (8) 95:21 99:12 100:11,14 139:13,14 160:23 174:19 lump (1) 11:13 lunch (3) $26: 5$ 59:3 121:23
lying (2) 18:2,6
m (1) $40: 4$
machine (3) 45:25,25 52:13
machines (1) 25:9
maher (2) 73:11 74:11 main (12) 33:12 34:3
42:15 85:25 95:1
104:23 108:24 117:18 138:22 168:18 173:11
214:9
mainly (3) $31: 9$ 174:18 212:10
major (2) 86:9 94:11 makes (2) 22:1 174:22 making (13) 14:9 46:2 153:11,11 182:1 197:5,13,16 198:18 207:10 209:4,7 215:6 man (1) 207:25 manage (4) 107:5
198:25 208:20 218:11 managed (2) 107:6 179:13
management (11)
98:12 105:18,22 106:21 107:7 108:1 116:9,18 117:18 138:4 147:11
manager (12) 77:21
94:8,9 98:17,18,21,21
107:2,13,18 119:15,16
managerial (1) 94:8
managers (3) 140:5
201:10 211:13 manner (5) 86:17 110:17 114:19 198:25 207:9
manufactured (2) 47:5 169:2
manufacturer (7) 29:9
30:24 32:6 41:20
47:12 50:8 167:10
manufacturers (2) 31:2 42:20
manufacturerssuppliers (1) $137: 12$
manufacturing (1) 5:23 many (16) 52:4,8 70:15 83:9 108:7 109:1 116:4 117:20 153:13 165:24 211:9 219:6

|  |  |
| :--- | :--- |
| 222:15 223:1 | mates (7) $74: 16$ | 226:20,20 75:8,9,12 76:5 77:6 march (4) 20:15 93:6 103:9,17

margin (4) 125:24
126:10 127:17 189:11
mark (20) 22:25
48:15,23 56:7,14,15
69:24 91:1,13,15 101:14 115:13 120:18 136:3 199:19 205:2 207:24 220:19 229:19 232:4
marked (2) 164:3,11 market (2) 168:25 169:4 marketing (3)
44:11,14,18
marking (1) 36:6
markings (1) 45:4 marriott (9) 101:5,6

120:16 123:12 135:24 189:2 191:16,16 201:17
marry (1) 171:18 martin (66) 1:3,7,9

16:1,11 18:22 63:22 64:3,14 66:4,11,19,21 88:14,17 89:2,7,11,17,21 90:12,14,21,24 91:3,7,11,14,16,19 121:19,21
122:1,7,12,14 170:12,15,17 179:17,21 182:7,11 190:13,16 191:1,5,8 192:19 193:7,10,21 212:18 213:19 215:7,17 227:21,24 228:3,15,20
230:13,19,22,24 231:4
maryam (1) 226:24 mast (18) $25: 25$ 36:1,3 45:22 52:23,24 62:13 68:12,15,16,20 72:20,21 80:16,19,21 85:22,23
mastic (5) 130:2 139:19 177:15 203:1 217:15 masticking (1) 201:2 matches (1) 177:20 mate (10) 73:21,25 74:2,5,23
75:7,11,20,23 76:1 material (23) 27:18 33:2,5 35:2 37:7 41:7 44:11,14,18 84:1 86:4 142:2 155:4 160:24 167:11 170:20 180:12 184:13
227:4,6,7,13,14
materials (39) 8:16 10:4,8 11:2 17:18,20,21 25:12 26:10,18,22 27:4 29:13,18 54:23 96:11 101:19,21 118:2 130:24 141:15,19,23 142:10,15 145:4 146:1 149:11 152:2,22 174:12 175:17,20 178:20 197:24 205:5 207:13 227:10 229:24
mentions (3) 111:13 142:6 167:24 mentored (3) 98:6,7,8 mentoring (2) 98:10,10 mere (1) 180:18 message (1) 196:23 met (11) 29:17 60:17,20 92:17,23,25 93:4,8 107:8 134:25 173:10
met00019985 (1) 2:24 met000199852 (1) 29:17
met0003980752 (1) 60:19
met00056694 (1) 93:1 met00056695 (2) 93:6 173:10
met000566954 (1) 173:24
met00056696(1) 92:19 method (18) 77:11
120:23 121:12 123:10
128:16,25 130:22
132:1 187:10,16,20 188:8,21 194:16
196:19,20 197:20
204:9
methodology (1)
197:21
methods (1) 204:12
metre (1) 10:5
metreage (2) 10:18 11:19
metres (4) 21:23 40:1 145:3,23
metropolitan (1) 2:24
metsec (1) 21:25 middle (5) 103:13,15 172:20 191:15 217:12 might (63) 32:19 33:7 35:14 36:13 41:21 42:22 43:12 53:20,23 58:7,11 62:2 63:10 77:2,14 78:20 83:7 86:10,19 90:9 102:18 113:16 114:10,19,24 118:25 119:18 122:20,21 123:2,4,21 124:16 126:5 127:5 139:2 145:21 146:12 147:2 149:17 154:17 169:13,16,23 170:19 175:3 181:13 184:22 185:15 186:19,19 190:11 201:20 202:23 204:1 205:5 222:19 223:8,10,11 226:11,11 227:24
millett (1) 231:2 millimetres (1) 161:23 mind (13) 71:17 74:23 75:6,7,10,12
127:14,25 138:15,19
194:20 210:24 217:21
minds (1) 108:25
mine (1) $7: 4$
mineral (13) 50:13
61:11 65:1 167:11,25
168:3,4,8,10,15,21
169:15,22
minor (1) 216:10
minute (1) 198:6
minutes (5) 91:1 175:2,3 210:14 228:2 miserably (1) 210:10 misery (1) 104:6 missed (2) 58:18 147:11 missing (1) 164:23
mistake (11) 7:13 136:8 138:6 153:11,11 178:2 181:1 188:1,4 189:16 196:3
mistakes (1) 196:3
mix (1) 101:20
mmhm (1) $162: 7$
mocked (1) 89:25
mockup (46) 23:11,24
24:3,11 34:6,7,11
45:20,21 47:15,22 48:3,10,12,24 49:5,7 55:17,25 56:3,15 57:7,11,13 63:4,5 68:1,4 89:22 90:3,5,9 103:1 108:9,11,12 111:9,14 113:21 155:12,16 171:9,13 192:6,7 194:19 mockups (3) 87:22,25 88:6
moment (13) 15:16
43:6 64:13 65:25 75:1 103:7 106:22 121:17 165:9 190:11,15 192:21 218:9
monday (3) 74:25 221:15 223:10 money (5) 123:22 201:21 205:19 207:1,8 month (1) 8:23 months (1) 46:17 moorebick (62) 1:3,7,9 16:1,11 18:22 63:22 64:3,14 66:4,11,19,21 88:14,17 89:2,7,11,17,21 90:12,14,21,24 91:3,7,11,14,16,19 121:19,21 122:1,7,12,14 170:12,15,17 179:17,21 182:7,11 190:13,16 191:1,5,8 192:19 193:7,10,21 227:21,24 228:3,15,20 230:13,19,22,24 231:4 more (88) 8:18 10:18 18:17,24 20:18 21:17 24:2 38:18 40:5 41:6 44:17 46:17 47:7 49:18 52:10 59:22 63:25 68:23 80:16 84:6 86:2 87:22 88:24 89:11,18 90:4 96:14 100:3,25 103:6 107:12 110:1 116:11 117:24 121:8 123:22,25 124:20 127:16,16 128:2 129:17 130:16,25 131:17 135:11,16 141:6,14 155:22 156:3 163:18 165:11 170:19 176:9 177:17 178:16 180:10 183:7 184:23 187:11 188:9 189:21 198:10

201:13,21 202:25 207:25 208:8,14,20 210:5 212:4 213:8,18 214:11,13,22 215:5 219:8 222:2,9 224:14 226:22 228:1,9,21
230:9
morning (11) 1:3 66:25
101:16 102:21
120:18,22 177:2 189:3
191:20 198:13,22
mornings (1) 122:17
most (9) 62:12 72:16
108:6 140:19
186:20,21 196:20
203:9 216:16
mostly (2) 123:24
202:20
move (5) 16:18 74:20
109:23 126:19 202:2
moved (3) 51:5 68:15 160:13
narrower (1) 182:14
national (1) 29:12
natural (1) 196:15 nature (2) 84:24 120:8 nbs (6) 165:3,5,10,21 167:1,20
near (6) 123:19 124:5,13 200:1 201:19 204:22
nearly (1) 193:22 necessarily (8) 43:6 103:10 119:9 138:2 139:24 140:18 169:13 222:25
necessary (6) 110:21 167:16 168:15 172:7 185:23 186:1
need (42) 22:12,23
24:11 71:2 72:8 80:20
87:3 88:25 89:11 91:1 96:23 97:2 104:20
110:7 126:3 138:20 141:9,10 149:17 154:17 174:23 175:2 176:2,3,8
177:12,13,19 178:6
181:12 195:1 197:5
201:10 206:4 207:25
214:20 217:11,21
222:25 227:24 228:5,6
needed (14) 22:17 54:8 56:4 88:19 105:7 117:5 141:22 150:2,18,19 184:25 203:19 206:15 222:25
needing (1) 210:21
needs (10) 88:20
101:22 153:9 170:24,24,25 174:2 205:3 208:1 217:12
negative (1) $210: 6$
negotiate (1) 73:19
net (2) 20:6,12
never (20) 14:15 15:1
27:1 51:18 59:6 83:6 85:7 86:8 102:5 110:11 123:18 126:22 152:1,10,11 170:5 181:3,5 188:12,19 newbuild (10) 143:5 145:5 146:13,17 148:23,24 149:4,5 151:14,15
newbuilds (1) 146:14 newham (1) 31:19 newly (2) 99:22 118:9 next (15) 43:13 73:17 74:13 160:6 172:6 177:4,7,21 185:9,10 198:18,18,22 217:20 220:17
nice (1) 92:2
night (1) $85: 2$
nine (1) 94:5
nobody (2) 84:19 166:21
noncombustible (2) 161:9 169:3 none (6) 13:14 14:18 15:13 168:16 174:17 220:25
nonsuitability (1) 152:23
nonventilated (1) 43:22 normal (2) 25:16 169:14 normally (12) 42:4,5
69:5 102:16 128:21,21 131:17 134:16 146:10 174:18 185:11 229:24
north (3) 38:6 80:17 140:4
nose (3) 177:17 178:22
188:10
note (5) 1:24 82:21
92:4 166:24 189:13 noted (3) 80:3 110:18 226:11
notepad (1) 22:5 notes (3) 22:5 41:25
43:16
nothing (19) 13:11,18
24:25 25:18 85:13
88:7 96:22 110:20
111:10 128:2 141:6
142:16 147:11 180:15
181:18 192:20,23
194:11 210:10 notice (4) 58:5,6 65:9 204:2
noticeably (1) 178:5
noticed (3) 172:21 200:3,6
november (3) 20:15 136:4,9
nowhere (4) 123:19
124:5 200:1 201:19 number (13) 83:18 95:16 105:19 106:10 122:20 135:25 136:15 139:6 204:19 212:16,25 217:1 226:16 numbered (1) 103:15 numbers (1) 123:17 nut (1) $86: 7$
observation (1) 82:23
obtained (1) 95:16
obviated (1) 195:1
obvious (3) 108:6
154:19 195:20 obviously (31) 7:15 9:8 13:22,25 14:1 16:24 18:18 20:16 22:16 23:7 24:7,25 26:5 32:17 35:18 39:8 41:1 46:25 51:19 56:19 71:23 78:25 102:14 109:19 140:25 153:6 168:24 185:8 192:9
218:18 219:25
occasion (4) 26:6,8
104:17 107:9
occasionally (3) $25: 6,7$
129:16
occasions (5) 104:16,24
211:9 212:25 215:19
occupied (2) 197:15
206:24
occur (6) 79:25 149:17
154:16 165:20
169:15,22
occurred (3) 26:6
110:18 113:12
oclock (3) 121:24 122:8 231:9
oconnor (15) 83:14,15 84:10 97:25 98:8 101:8 107:10,14 120:17,23 121:12 123:12 147:21 199:15 220:16
oconnors (1) 115:12 october (4) 24:16 217:6 229:6,20
oddlyshaped (1) 172:9 offered (2) 126:23 131:1
office (2) 8:18 21:4 officer (1) 147:13 officers (2) 82:4 225:1 offs (1) 220:20 often (2) 58:25 152:6 oh (5) 16:11 104:20 148:8 151:13 224:12 ok (2) 11:11 12:9 okay (52) 3:22 6:9 7:23 8:20 14:2 19:2 23:22 29:10 31:20 47:10 48:19 53:2 63:21 64:3 66:10 73:4 76:6 81:22 88:12 89:1,6 90:11 93:18,22 97:15,20 99:15 100:20 105:11 107:19 112:22 114:11 119:24 136:13 139:25 141:13 151:19 153:9 156:16 166:25 179:13 181:15 183:5 184:14 186:19 196:13 201:6 210:12 218:7 222:7 227:19 230:21
old (15) 15:23 16:12,22
111:9 112:3 114:18 118:9,11 125:21 163:12 193:13,14 195:4 220:3 224:2 oldfashioned (1) 170:20 once (14) 22:15 24:7 53:23 57:12 60:21 80:20 111:8 120:24 153:11 177:5 200:23 213:5 215:4 224:21
oneoff (2) 26:6,8
onepage (1) 93:2
ones (28) 31:10
39:16,16 40:16,24 41:15 44:22,23 45:9 46:7,11,13,16,22 47:9 58:4
63:2,3,12,18,20,23 67:9,11 93:11 119:15 166:6 195:4
onesic (1) 48:4 open (6) 59:5 60:25 61:16 143:6 145:15 189:23
opening (2) 132:14 200:25
openings (4) 53:6 64:20 65:2 148:17
operate (1) 53:11 operatives (13) 71:3
72:4,23 77:23 78:2 130:7 132:19 154:3 158:3 159:3 164:10 217:18 229:25 opinion (4) 116:4

178:2,6 200:1
opportunities (3) 59:10 213:21,21
opportunity (5) 87:6 88:20 131:8 155:16 230:7
opposed (1) 37:2
opposite (1) 132:8 option (5) 84:7
166:2,9,10,11
options (2) 126:16,20 oral (4) 112:23 141:17 155:6 215:7
orally (1) $13: 17$ order (3) 64:20 103:22 110:20
ordered (1) 51:23 organise (1) 217:20 orientate (1) 157:4 orientation (1) 58:10 original (32) 21:20,22 22:10,25 47:15 57:4,10 68:10 113:17 118:8 126:22 157:19 160:10,19 162:8 163:19,20 166:6 177:17,19,24 179:14,19 185:22 186:3 187:10,16 188:8 195:8 202:22,24 205:20
originally (8) 5:21 16:15 100:21 112:2 159:13 166:22 179:22 212:20
orthodox (1) 170:19
osb0000000007 (1)
24:14
osb0000000046 (1) 11:6
osb000000050 (1) 20:23
osb000000051 (1) 10:2
osb0000000512 (1) 39:21
osb000000053 (1) 73:7
osb0000000531 (1)
76:13
osb0000000532 (2) 74:9,20
osb0000000533 (1) 74:13
osb0000000534 (1) 73:8
osb000000061 (1) 9:14
osb0000000613 (1) 9:23
osb0000000080 (1) 70:19
osb000000084 (3) 3:11
19:7 69:1
osb0000000843 (1) 13:2
osb00000086 (1) 2:3
osb000000862 (1) 26:12
osb000000865 (2) 4:1 6:13
osb000000867 (2) 2:5 38:21
osb00000091 (1) 2:14
osb0000009110 (1) 14:6
osb0000009114 (1)
2:15
osb000000912 (1) 8:8 osb000000918 (1) 81:3 osborne (63) 1:5 3:7,12 4:2,18 6:14,15,23 7:8,10 8:1,4,12 9:1,2 10:15,23,24 12:2,15 13:1,5,12 14:8,12,16,19,23 15:15,22 19:5,6,9 23:12 24:15 27:8,9,23 32:5,8 34:12 35:25 36:2,13 38:23,25 51:13 54:7,23 55:13 56:2,14,22 58:24 62:8 68:25 69:4,10 77:22 80:13 81:7,19 180:7 osbornes (2) 6:24 7:17 osgood (10) 98:2,2
114:4 180:6 199:15
207:22 209:3 212:18
213:20 220:17
osgoods (1) 215:9
others (10) 6:7 76:24
101:20 122:25 135:25 143:14 191:17 202:14 204:17 229:11
otherwise (1) 132:22 ought (3) 61:12 168:8 189:15
ours (1) 18:19
ourselves (5) 10:19
54:18,19 58:14 157:4 outcome (3) 122:19 151:3 206:17
outer (6) 17:24 28:4
30:1 44:24 125:13
193:12
outside (19) 16:3 17:21
18:18 22:24 24:12 35:13 90:5 115:8 146:15 149:1,22,24 150:3,5,7 168:9 173:3 192:25 195:2 outsides (1) 18:1 outstanding (2) 177:14 225:15
over (21) 7:16 21:20 63:23,25 68:11 75:2,16,18,19 80:25 83:17 85:24 115:1 145:3,22 188:12 193:15 214:16 217:7 220:14,17
overall (6) 10:19 13:24 96:15 147:17 170:6 199:25
overcome (3) 112:14
191:24 193:7
oversaw (1) 94:11 overseeing (1) 215:20 overseen (1) 94:16 oversized (2) 50:21 132:14
overview (1) 97:9
own (5) 10:15 62:9
68:13 113:2 155:23
p10 (1) 167:3
pace (1) 210:4
package (9) 14:14
17:16 120:21
136:1,6,15 137:3
165:14,20
packed (2) 123:2 180:17 packer (18) 178:1,13 179:6,10,11 180:25 181:3,6,14,16,22 182:14 184:16 185:4 187:18 189:19 190:4 196:16
packers (4) 123:3
182:24 196:12,14
packing (3) 179:22,22 195:1
pages (1) 165:14 painting (1) 201:2 pale (1) $30: 7$ pallet (1) $64: 1$ pallets (2) 35:17 62:24 pan (1) 36:12 pane (1) 15:24 panel (16)

31:12,16,17,17,18 34:3,4 50:23,25 51:4,9 53:18 157:11,19,20 158:12
panels (19) 28:4,4,9

158:7 211:18
phenolic (3) 28:23
146:15 168:22
phone (3) 8:17,24 77:1
photo (3) 35:23,24 164:16
photograph (5) 59:24 60:16,18 161:13 223:22
photographic (1) 58:8 photographs (4) 57:25 64:6,7 157:4
photos (1) 172:8
phyr000002920 (1) 158:7
physical (1) 12:14
physically (2) $25: 1$ 51:25
pick (4) 73:7 122:17 196:5 206:5
picked (9) 58:10 138:7 154:10 180:9,12 188:11 195:7 210:3 218:17
picking (3) 124:3 195:15 209:18 picture (3) $36: 20$ 158:6,17
pictures (4) 45:2 58:3 59:16,19
piece (8) 16:17 41:6 115:8 137:23 156:6 193:3 198:19 202:16 pieces (2) 105:20 126:5 pilot (7) 105:13 106:4 115:14 176:23 185:21 186:12 216:2
pin (2) 90:8 102:8
pir (2) 28:23 168:23
place (38) 8:21 16:13 36:21 55:9 82:13 99:25 100:18 109:16 111:24 118:24 123:5 125:19,23 126:9,12 127:11,18 132:21 138:4,4,5 142:15 145:12,12 149:20,23 159:6 160:11 164:10 171:19 189:10 193:17 205:22 208:8 212:8 215:5 216:8 223:12 placed (3) 19:9 130:11 147:23
placing (6) 128:7 174:11 175:17,20 192:24 202:16 plain (3) 35:12 40:17 50:13
plan (1) 198:6 planned (3) 206:1 209:20 219:7
planners (1) $30: 17$ plast (1) 129:21 plasterboard (49) 123:2 125:23 126:5,10,17,21,22 127:6 130:17 168:14 170:18 178:1,13,25 179:6,10,11 180:15,25 181:3,5,8,14,22,24 182:14,24 183:6 184:16,20,22 185:4,24 186:3 187:10,16,18

188:2,21,22 189:10,17 190:3,9 195:16,18 196:11,14,16
plasterboardcelotex (1) 128:7

## plastering (26)

94:4,15,19,21 95:3,20
99:1,8 100:2
103:21,25 106:23
107:1 112:25
129:5,8,10
135:19,21,25 137:20
139:6,11 161:3 174:4
198:1
plasterings (3) 97:21
107:2 188:24
plastic (33) 17:23
18:2,6 33:4,4,7,11,14 105:20,24 106:10,16 110:19,21 112:7 131:7 157:21 160:17 170:14 171:8 178:14,20 180:10 183:16,18,21 186:1,6 195:12 198:22 204:8 213:17 224:24
players (2) 208:10 213:11
playing (2) 207:2,3
pleasant (1) 199:11
please (34) 1:6,11,20,22
19:1 66:6,14 89:4 91:13,14,25 92:2 120:20,24 121:24 122:2,4,8 123:15 177:6 182:11 189:3 190:19,21,23 191:1 200:9 206:7 208:13 217:21 221:3,15 230:3 231:10
pleasing (2) 116:12 117:7
plenty (4) 59:10 168:25 169:4,6
ploughing (1) 220:24
plus (1) 73:1
ply (1) $123: 3$
pm (11) 89:14,16
91:8,10 122:9,11
191:2,4 228:17,19 231:12
points (3) 81:24 124:3
187:6
police (8) 2:24 60:17
92:17,23 93:4,8
173:10,11
polite (1) 87:15
polyethylene (2)
33:18,20
polyisocyanurate (1)
28:23
polystyrene (2)
227:3,14
poor (5) 57:18 58:1
229:13,22 230:5
poorly (3) 53:21 57:21 58:8
position (19) 3:7,12,13
13:1 19:7,14 22:9 55:17 56:8 57:21 59:23 60:4 62:10 63:9 68:25 76:9 138:3 163:16,18
positioned (1) 50:14
possible (8) 7:16 62:7 110:24 115:14 117:6,21 171:18 223:1 possibly (15) $7: 18$ 13:18 14:25 33:14 34:18 52:7 55:8 71:1 72:13 93:11 113:11 114:15 151:13 222:4,23
potential (2) 25:14 186:3
potentially (2) 38:1 132:4
pounds (1) 124:22
power (1) 207:25
practice (13) 45:6 49:19 50:25 52:9,15 54:13,14 57:1 59:10 82:6 116:23 137:14 141:25
precaution (1) 186:4
precise (1) 159:12
precisely (2) $24: 2$ 144:1
predominantly (1)
94:22
preferable (2) 169:16,23
preferred (3) 156:3,5 177:18
prefinished (2) 150:18 170:25
preglazed (2) 16:16 21:18
preparation (1) 3:13
prepare (1) 7:1
prepared (3) 103:9 165:4 202:3
preparing (1) 192:13
prescribe (1) 131:12
present (4) 81:7,12 82:2
111:25
press (1) 178:4
pressing (1) 132:6
pressure (13)
109:4,21,22 110:8
128:23 180:19 200:20
201:8 205:6 206:3
207:17 210:15,16
pressures (4) 199:3 204:5 210:20,24
presumably (3) $16: 1$ 23:24 34:9
presurvey (1) 218:15
pretty (7) 103:2
106:5,18 113:22
130:13 185:11 206:13
prevent (2) 148:17 167:17
previous (7) 14:1 27:19 41:4 64:23 65:18 71:4 146:12
previously (6) 21:10 119:11 152:7 200:15 209:3 216:16
price (24) 9:19 10:19,24 11:9,11,15,21 12:4,9
21:3,20 22:10
101:15,17,21 102:2,23
123:14 124:4,15
186:18 203:5 206:6,11
priced (3) 10:12
206:18,18
prices (2) 205:21,23
pricing (2) 40:9,13
principle (1) 52:13
principles (1) 110:6 prior (11) 4:1 18:2 23:18 24:9 41:13 63:19 69:19 97:21 135:18 142:5 175:21 private (1) 7:8
proactive (2) 176:13 215:6
probably (26) 9:9 20:11 52:12 98:23 104:7,12,16,17,21 105:2,9 107:9 123:1 124:20 146:17 147:24 148:8 156:25 164:23 169:8 201:9,11 207:3 210:8 216:21 222:11 problem (11) 87:13 118:21 119:7 122:19 128:10 132:22,24 182:16 183:3 186:17 195:24
problems (5) 11:10 27:20 47:24 143:7 229:2
procedure (1) 216:15 proceed (3) 48:19 143:22 206:7
proceeded (1) 110:16 proceedings (1) 88:22 process (25) 69:6 105:1 113:20 117:5 124:14 132:6 147:5,18 154:24 155:7,10,12 187:8 196:5 197:13,18 198:21,24 209:5,13 210:4 216:21 220:5 222:18,22
processes (1) 166:1 produce (4) 116:10,19 135:12 216:18 produced (1) 124:15
product (47) 28:22 29:25 35:5 37:2,2 42:12,16 43:7,11 44:7 50:12 106:18 108:25 127:24 140:21,22 146:25 147:25 148:7 149:9 150:18 152:7 153:20,21 154:4,11,25 155:1,20,24 156:13 166:13 167:22,24 168:3,13 170:24 171:14 177:16 182:15 184:9,20,22 191:13 194:18 213:9 214:12
products (19) 27:14,17,21 28:3 40:12 41:4 43:19 62:5 131:15 144:1,9,12 152:14,18 155:8 156:22 157:1 168:5 169:10
professional (2) 3:24 87:15
programme (6)
13:14,18 80:13 103:23 206:2 209:21
progress (4) 6:1 47:19 103:8 211:10
progressed (3) 38:9 222:22 224:19
progressing (1) 25:21
progression (1) 196:15
progressive (2) 220:6 222:24
project (73) 4:13,20 6:4,20 7:25 8:5 9:4,19 11:3,14 14:22 17:3 20:16 23:15 25:3
26:7,21 27:4,16,24 29:23 30:11,22 32:13 33:1 41:14,25 42:2,15 43:25 44:24 45:13,17 53:3 54:7 64:16 69:17 70:9 71:5,12,15,20,21 72:2,24 73:10,14 74:7 76:7 77:13 78:2,17,24 79:17 80:23 94:8 98:17 107:4 119:3 134:8,14 142:23 143:14 146:5 148:20 165:3,5 166:4 174:14 188:16 210:22,23 213:25
projects (10) 9:9 13:23 15:18 29:6,22 33:3 41:4 64:23 65:18 94:17
prompt (1) 222:18 prone (1) 105:25
proof (1) 174:11
proofing (1) 167:4
proper (2) 101:22 176:2
properly (1) 17:9 property (4) 173:20 217:23 229:23,25 proposed (2) 8:15 130:24 proposing (3) 126:15 143:16 144:2 protection (2) 170:18 174:10
provide (20) 15:15,17 31:25 50:25 71:13,14 72:2,23 92:22 99:21 110:21 112:6 115:10 130:25 157:21 168:11 170:17 186:1,5 220:10 provided (24) 3:7 11:13 12:3 30:23 39:20 43:2 81:9,17 92:16 95:13,19 101:15 102:2 117:25 119:25 123:10 128:15 132:1 133:14 137:17 145:25 148:15 174:6 184:23 provides (1) 7:10 providing (5) 96:2 98:11 101:18,21 173:16 proving (1) 103:19 public (2) $84: 186: 4$ pull (4) 41:24 92:25 133:5 185:19 purchased (1) 171:11 purely (7) 11:16 12:11 36:17 48:4 120:8,11 212:7
purpose (7) 53:4 98:10 169:19 170:21,22 185:25 227:25 purposes (1) 161:20 push (6) 132:7,14 160:25 178:23 180:23 184:11
pushed (1) 160:16 puts (1) 198:20
putting (15) 18:14,15 51:16 59:1 70:10 108:15 110:7 113:24 162:23 173:1 184:13,15 198:17 212:8 213:14
puzzled (1) 63:13
$\overline{\mathbf{Q}}$

## q (869)

2:9,11,13,19,21,23
$3: 4,6,11,16,19,22$
4:6,9,14,18,24
5:6,9,11,18,21,25 6:3,9,18,20,23 7:3,5,14,16,19,21,23 8:7,20,25 9:6,12 10:2,8,12,15,22 11:1,5,17,23
$160: 1,3,5,13,18,21$ 161:2,6,8,12,19,22 162:1,4,8,11,13,18,21,23 163:4,10,12,15,23 164:1,3,6,8,17,21 165:1,12,16,19 166:3,10,13,16,21,25 167:6,20,22,25 168:2,4,7,14,20 169:4,15,21 170:1,5,11 171:15,20,24 172:3,6,12,14,17 173:5,9,13,19,24 174:25 175:5,9,16,24 176:2,12,16,25 179:4,9,16 180:24 181:7,10,13,20,23 182:4,18,20,22 183:2,4,11,18,20,23 184:1,14,19,22 185:1,7,15,18 186:10,22 187:14,19,22 188:4,7,15,19,24 189:15,24 190:3,7 191:20 192:5,11,15,18 194:5,12,17,23 195:10,14,24
196:10,16,21
197:10,23 198:1,23 199:3,13 200:12,16,19
201:6,12 202:19 203:10,13,16,23 204:3,14,25 205:11

## 206:20,25

207:7,13,17,21
208:5,24 209:3,10,15 210:1,12,19,24 211:2,6,15,22 212:5,12
213:4,10,19,24 214:4
215:1,7,15,17,21 216:1,5,15,24 217:3 218:3,7,9,21,23 219:4,9 220:2,9,13 221:8
222:1,7,12,14,19
223:5,15,21
224:6,9,15,18,25 225:3,5,10,20 226:6,9,16,22 229:17 qa (4) 70:23 208:21 216:9,18
qualification (1) 203:21
qualifications (5) 4:25
5:15 141:4 203:18,19
qualified (7)
140:12,15,18,24 141:1,9,10
quality (13) $13: 20$ 17:8 46:2 59:11 70:24 77:7 78:25 79:2 108:20,23 204:3 207:18 210:25
quantities (5) 9:24
39:19,20 40:21 156:12
quants (2) 11:16 21:22 query (2) $175: 24$ 176:2 question (9) $1: 20$ 14:7 20:6 26:13,17 87:22
89:20 91:25 137:19
questioned (1) 188:12
questions (36) 1:14,18

3:23 6:10 7:25 19:4 26:10 34:22 38:18 66:2,24 68:23 88:13,19,21,24 89:18 90:15 91:20 93:23 99:7 152:17 176:17 178:8 194:24 201:13 205:12 227:20 228:5,6,9,21 230:12,14 232:3,5 quick (4) 102:12 117:5 150:19 170:25 quicker (3) 197:5,13,19 quite (18) 18:23 83:5 102:6 107:17,17 129:13 131:11 132:8 138:7 140:25 142:1 143:17 146:19,22 166:15 179:12 182:23 218:16
quotation (18) 99:21 105:4 123:15 125:3,5 133:3,4,6,7 136:4 185:22 186:3 188:24 189:8,18 195:18 196:13 201:17 quotations (1) 123:9 quote (5) $126: 16,25$
127:4 128:6 181:7
quoting (1) 124:4
reil (2) 47:4 51:6
rail (2) 47:4 $51: 6$
rails (2) $31: 1357: 23$
rainscreen (7) 4:15 5:16
39:21 40:3 50:2,4 53:5 raise (3) 56:8 57:10 216:25 raised (11)
56:4,12,18,21 57:8,12
151:12 187:6 193:17 227:3 229:12 raising (1) 56:22 ran (1) 207:9 rarely (1) 199:12 rated (1) 184:22 rates (1) 73:19 rather (17) 10:20 17:16 25:17 56:8 146:13,17 155:25 169:17 173:3 182:25 197:22,24
208:17,19 222:21 226:3 229:15
rating (1) 147:1 ratings (1) 174:20 ray (12) 8:3 12:19 21:16 22:4 70:21 71:13,18 84:20,22 85:1 86:24 87:8
rbkc (5) 48:11 82:3,6 224:18 225:1 reaction (1) $27: 15$ read (12) 2:9,19 3:1 45:12 92:11 93:8 100:18 151:24 177:21 187:14 194:1 216:7 reading (8) 71:22 100:23 108:13 110:15 111:12 166:5,19 171:1 readjust (1) 203:6 reads (1) 25:8 ready (8) 66:19 91:5 114:5 122:12 191:5 198:18 200:21,25
real (1) $74: 25$
realise (1) 188:15 realised (2) 22:12 56:3 reality (2) $76: 10$ 182:24 really (12) 4:968:24 90:10 91:23 96:15 97:6 105:1 178:5 193:5 194:9 204:2 214:22
rear (7) 109:16,19
110:2,3 158:25 160:17 164:18
reason (7) 27:13 39:10 51:14 56:12 105:5 130:19,25
reasonable (1) $64: 9$
reasons (2) 206:20,23 reassess (1) 208:14
reassessing (1) 104:18 recall (31) 7:2 8:20,22 34:8,17,18 55:1,6 62:20 76:20,23,25 77:9 78:18 79:4,13 80:12 86:5 88:7 99:20 104:24 105:1 111:24 112:7 113:22 117:11 121:7 156:12 165:8 185:15 214:24 receipt (1) 218:10 receive (2) 32:5 79:16 received (3) 12:16 71:18 72:1
recently (9) 2:9,10,19 3:2,3 54:1 92:11 93:9 194:1
recognise (2) 136:23 180:3
recollect (3) 116:3 119:13 121:14
recollection (6) 48:11 56:6 79:8 106:6
111:12 125:18 recommend (1) 32:21 recommendations (3)
49:25 137:12 209:4
recorded (2) 70:15 86:9
recording (1) 70:8
recruited (1) 69:13
recruiting (2) 80:12 203:13
rectified (4) 145:18
185:14 217:20 226:19 rectify (4) 81:19 188:23 216:23 218:20 red (6) $34: 13$ 86:18 157:15 158:24 162:24 172:20
redoing (1) 217:12 reduced (1) 151:21 refer (6) 81:24 93:17 106:9 181:15 216:11 222:5
reference (7) 12:8 121:11 129:3 130:9,17 142:9 195:18
referred (9) 7:14 21:14 27:23 34:6 67:25 144:7,11 211:19 219:9 referring (18) 18:6 24:23 25:11 71:6 86:20 87:18 102:20 106:9 116:18 148:11 175:5,7 178:21 179:7

189:16 192:3 194:2 196:2
refers (10) 24:24 76:5 113:16 174:1,18 178:15 197:13 219:25 224:12 226:2 refit (1) 208:1 reflected (1) 206:11 refurb (10) 43:18 102:16 143:5 145:5,22 146:13,18 149:4 151:15 206:24 refurbed (1) 119:17 refurbing (1) $145: 7$ refurbish (2) 8:12 135:19
refurbishment (12) 8:15 19:10 94:11,16,24 97:17,22 107:3 119:3,12 143:17 219:12
regarding (1) 99:9 regards (5) 9:20 76:16 84:9 174:4 192:1 regular (4) 220:1 221:22 222:9 224:20 regularly (1) 219:16 regulation (1) 145:14 regulations (10) 26:15,15,23 64:21 83:9 97:12 142:25 143:5 152:20 153:15 reinstalling (1) 178:7 reinstated (1) 139:20 related (1) 165:19 relates (1) 165:21 relating (3) 122:3 225:15,16 relation (10) 4:25 5:15,18 29:12 33:20 38:25 73:9 81:4 137:18 187:6 relationship (2) 13:6 99:2
released (3) 80:18,19,20 releasing (1) 80:16 relevant (5) 26:15,23 137:13 138:11 212:22 reluctant (2) 206:9,10 rely (1) $3: 8$ relying (1) 47:21 remain (4) 39:4 81:12 205:6 210:1 remained (4) 16:12 118:10 125:19 193:17 remaining (2) 66:2 166:2
remains (1) 90:16 remedy (1) 116:14 remedying (2) 113:7,9 remember (56) 5:7 19:20 23:1 24:4,4,7,8,9,24 28:11,18 29:8 34:19 35:13,14 36:25 37:11,16 41:16,22 42:2,3 44:16 45:3 48:14,14 54:16 55:8 56:7,15 64:2 71:21,23 77:14 78:22 79:4 81:17 90:10 102:7 106:6,7 107:18 108:14 110:7 112:2,21 114:14

124:17 125:12 156:20 164:14 185:11 194:9 197:14 221:5 225:17 remembering (1) 166:5 remind (2) 54:12,15 reminded (1) 188:17 reminding (1) 54:16 remodelling (1) 100:14 removal (2) 118:10
140:13
remove (8) 15:23 16:5,22 84:7
125:10,11,23 189:10
removed (7) 16:1 61:13
86:18 112:4 164:16,22 189:14
repeat (3) 1:20 91:25
183:25
repetitive (1) 63:6 replace (1) 195:4 replaced (6) 60:14,14
76:15,18,24 119:18 replacing (2) 94:12 140:13 replicate (1) 55:22 replicated (3) 120:4 147:24 194:21 replied (3) 77:3 84:22 85:2
replies (1) 76:14 reply (6) 74:21 86:22 87:9 186:25 187:1 208:6
report (19) 57:18,24 59:17,20,25 60:2,17,19 78:10 80:3 82:14,15 103:8 157:7 158:7 172:17 223:17,21,24 reported (1) 82:1 reports (1) 79:16 representative (1) 219:1 reprimanded (1) 86:13 request (3) 71:11 72:1 99:24
requested (1) 184:24 require (1) 168:12 required (16) 10:8 19:11 40:6 54:11 76:8 82:25 101:23 136:6 137:20 141:3 146:2 147:8,10 174:17 175:23 208:15 requirement (1) 150:11 requirements (7) 26:24 74:12 96:19 97:13 142:24 145:9 165:7 resident (6) 202:11,17 214:19 226:24 227:17 230:1
residential (3) 99:23 119:12 198:5 residents (13) 16:21 83:22 84:4 85:8 87:6 117:6 150:20 180:11 198:9 199:8 200:22 218:17 226:17 resistance (5) 130:23 131:1 174:3,3 184:23 resistant (1) 227:6 resisted (1) 210:17
resolved (2) 112:1 229:9 resource (3) 104:4,5,8
respect (3) 55:14 83:25 85:14
respond (2) 84:11 205:14
responded (3) 218:2,6 229:2
responds (2) 205:1 221:10
response (6) 186:24 196:22 204:25 205:11 221:8 229:18
responses (1) 187:3 responsibility (2)

150:15 203:13
responsible (4) 10:23 150:4 215:8,17
rest (3) 49:12 57:6,14 result (3) 109:23 114:1 217:19
results (1) 81:25
ryd00085892 (1) $225: 12$
ryd00088957(1) $125: 4$
ryd000942139 (1) 139:10
rydon (81) 23:23 47:22 81:8,13,18 82:11,11,25 83:14,24 85:9,20 87:7 94:4,7 95:4,15 97:16,23 98:19,21 99:8,20 101:1,2,6,9 103:8 107:8 111:25 112:25 116:2,19,22 117:13,18,22,25 122:19 123:12 124:5,6 128:24 131:16,20 133:15 135:17,20,25 140:4 142:11 152:17 156:4,17 166:21 168:7 171:8,15,21 174:7 175:24 176:18 190:1 191:12,17 192:6 195:21 196:11 200:13 203:23 204:15,17 207:22 212:16 215:1,18,23 216:10,25 225:12,13
rydons (26) 17:11,15 23:4 25:13,20,22 47:16 70:12 81:21 87:13 98:9 102:14 108:8,10 119:10,14 124:18 134:18,18 136:16,24 165:7 186:17 202:10 219:5 222:5
safety (14) 5:19 18:12 65:5 83:25 85:15 86:14 96:9,20 114:20,22 144:25 147:3,10 172:3 sail (1) 193:15 same (53) 7:1 13:25
14:2 15:16,17 27:18,20 29:24 41:7 43:9 52:7,13,14 56:20 61:14 63:3 67:16,18 68:10,14,23 70:4,5 82:22 89:25 106:18 110:6 119:19 128:11,12 132:22,24 137:20 139:1,22 148:5 152:21 158:19 163:5 169:8 170:7,17 171:12,14 187:1 205:3,6 208:6,19 213:19 219:7 229:11,20
sample (19) 17:12 22:25 23:4 47:15,19 55:9 57:4 68:13 111:16 113:12,18 126:22 142:3,6 152:21,24,25 164:6 178:16
samples (1) $17: 12$ sat (3) $22: 425: 17$ 164:24
satisfied (1) 154:24
satisfy (2) $69: 18$ 203:16 saving (1) 166:7
sdp0000019610 (2)
212:14 219:10 sdp0000019611 (1) 92:8
sdp000001962 (1) 95:10
sdp000001963 (2)
94:15 99:17
sdp000001964 (3)
105:15 116:7 118:6 sdp000001966 (1) 185:19 sdp000001967 (1) 156:9 sdp000001969 (1) 211:17 sdp00000198 (1) 128:16
sdp000002203 (1) 111:21
sdp000002204 (1) 151:25
sdp000002205 (1) 219:15
sdpl (4) 99:21 100:1
116:9 152:1
sdpls (1) 211:20
sdps (3) 151:1 215:2 217:1
sea00000169 (1) 165:4
sea00000169242 (1) 167:2
sea00000169243 (1) 167:6
seal (4) 16:23 22:23 110:23 226:15
sealing (3) $18: 15,18$ 61:18
seals (1) $14: 9$
seat (1) $231: 3$ second (22) 2:13,19 7:7 8:7 14:5 37:10 38:24 39:23 68:1,4 69:3 77:20 81:1 82:18 92:25 101:12 126:25 140:6 216:9 221:8 223:22 224:24 secondary (1) $168: 10$
secretary (1) 6:16 section (11) 30:14 31:22 52:15 100:14 157:6 160:23 167:3 184:8 194:13 226:8 229:22
sections (2) 106:15 109:4
secured (1) $100: 1$ see (242) 2:3,6,16,25 6:3 7:12 9:16,23,25 10:3 11:13,21 13:2 15:5 16:11 17:24 18:3,11 20:22 21:7 23:5 24:19,21 25:3,21,24 30:10 32:3 33:5 34:21 36:3,5,6,7 37:22 39:2,10,21 40:1,5 42:4,5,6,13,25 43:18,22 44:9,13,20 45:11 46:10 48:22 49:24 50:15 51:3 54:3 56:17 57:7 58:12,18 60:2,4,7,9 61:3,20 62:14,15,25 63:7,13

67:24 68:4,18 69:7 70:7,17 71:12 73:16,22 74:6,14,18 75:21 76:6 77:12,16,19,24 78:11,13,14,23 79:19 80:1,22 81:3,10 84:12 85:1 86:21 88:24 89:17 90:3 92:8,20 95:10,22 96:18 101:10,24 102:13,19 103:3,14 104:11 106:1 108:17 109:4 110:24 111:19 112:10 113:21 114:2 115:3 116:5 118:14 121:1 123:7,11 124:1 125:7 126:9 127:11,23 128:17 129:3 130:20 131:17 132:18 133:3 136:14 137:1,15,17 138:9,24 144:22 147:25 149:25 151:22 155:17 157:14,16,20,22 158:6,11,12,15,18 161:19 162:6 163:12,14,18,19,20 164:9,21,21 165:1,12,20 167:8,18,20 168:4 169:21 172:19 173:13,22 176:25 178:7 179:4 180:5,14 181:20 183:11,23 186:7 187:3,12 188:4 189:2,8 190:7 192:12,15 193:1,23 195:10 196:16 197:8,23 200:10 204:23 205:9,13 208:3,5 210:19 212:5,12 213:2,11,16,17 216:6,13 217:6,8,24 218:4,21 219:25 220:9,18 222:1 223:7,15,19,23 224:4,19 225:6 228:6,9,20 229:19 230:7
seeing (10) $24: 7$ 42:2,3 55:25 77:14 160:9 161:15 165:9 221:5 225:17
seek (1) $152: 12$ seem (2) 124:4 229:14 seemed (1) 55:4 seems (6) 20:17 177:24 179:4,17 180:24 194:15
seen (31) $30: 8$ 45:2 48:24 49:1 54:1 57:23,24 58:3,3 59:11 60:12 64:5 87:25 88:5 101:3 102:5 103:10 104:14 107:12 108:14,15 117:2 124:21 141:6 144:1 155:12,14 178:11 220:6 221:6 224:24 selected (1) 141:18 selection (3) 142:10 171:20,25
selfemployed (2) 69:5,9 selfpreservation (1) 214:11 selfsupport (1) 180:1 sell (1) 154:12 selves (1) 140:9 send (6) 10:16 21:5 91:4 186:24 204:22 222:17
sending (3) 10:20 21:11 189:2
senior (1) 119:16 sense (2) 50:17 206:14 sensible (2) 66:1 190:16 sent (18) 10:10 21:1
71:23 73:16 85:2
88:21 101:22 133:4 136:15,16,22 189:18 196:21 199:16,19 201:17 202:7 215:22 sentence (4) 38:24 69:3 140:7 209:18 separate (2) 37:14 99:4 september (8) 1:1 2:4 9:17 11:8 21:11 80:4 92:7 231:14
sequence (7) 133:10 197:14,25 202:8 206:19 208:23 215:22
sequenced (1) 199:2 sequencing (1) 135:9 series (3) 150:16,17 165:25
served (2) 5:21 169:18
service (1) 2:24
set (11) 13:11 15:11
57:4 124:9 133:17,24 134:1 170:7 204:9 209:1 210:5 seven (1) 198:8 several (7) 105:2
154:23 177:15 208:10 209:25 215:19 217:11
shakes (1) $35: 11$ shape (2) 51:2 131:20 shareholder (3) 94:3 95:5,11
shed (1) 102:17
sheet (5) 154:4 189:4
204:21 215:22 216:9
sheets (1) 216:19 shelf (2) $16: 4$ 46:24 shepherd (1) 96:3 shes (3) $60: 2$ 162:4,24 shocked (1) 199:24 shocking (1) 59:17 short (18) 49:16 64:12 66:5,17 78:4 89:15 91:9 92:23 93:2 122:10 130:13 190:18 191:3 206:6 227:22 228:5,8,18
shorter (1) 93:10 should (18) 57:2 68:9 80:3 93:15 112:4 118:3 120:1 126:13,14,24 134:2 138:7 146:25 152:3 154:22 186:21 189:14 221:4
shouldnt (1) 200:2
show (33) 34:16 57:25 70:2 101:18 102:23,25

103:2,3,4,7 104:14,15 106:4 114:5 117:2 151:7 164:14 178:19 180:4,11 186:21 194:6 199:16
200:2,17,18,20,22 201:5,8 204:7 220:7 224:14
showed (7) 36:12 45:21,23 63:4 68:14 133:18,24
showing (5) 42:10 86:14 120:1 158:1 163:9 shown (8) 21:21 55:21 68:2 86:18 174:24 220:7 224:13 230:8 shows (1) 161:4 sic (5) 81:8 87:13 101:20 217:11,21 side (34) 6:2 17:16 18:17 36:1,4 38:4,5,14 42:7,11,23 43:16 51:6,6 68:13 90:5 110:4,11 125:7 132:15 157:11 158:9 161:16 163:11,13 164:10 177:13 182:16 183:9 189:9,19 223:24 225:22 227:13 sidebyside (1) 75:24 siderise (12) 29:7 41:18 44:11,17
49:18,19,20,23
50:2,5,7 61:14
sides (2) 65:14 159:9 sig (1) $37: 9$
sign (6) 147:14 212:17 214:17 216:6,9 220:20 signature (3) 2:7,17 92:9
signed (9) 7:3 113:5 216:9 221:1,4,13,16 222:6,15 significant (2) 124:18,25 significantly (1) 118:17 signoff (9)
212:18,21,23,25 213:4
221:25 222:23,24,25 signoffs (2) 216:18 222:17
sil00000227 (1) 44:17 sil000002276 (1) 49:23 sil00000230 (1) 44:10 similar (18) 6:25 27:17,21 28:3,4,6,7,9,15 29:25 31:17 65:17 71:11 85:12 119:3 169:1,5,7 simon (33) 83:14,15 84:10 97:25 98:8,8 101:5,8
107:10,14,21,24
111:13 120:17,23 121:12 123:12,13 136:3 141:17 142:5 147:21,22 151:8 176:21 187:1,3 191:17,20 199:14,15 201:9 220:16
simons (4) 180:5,18 193:4 200:23
simplify (1) 109:2
since (9) 19:5 94:1,17 98:20 108:13,16 124:21 140:24 230:8 single (8) 15:24 16:6,22 138:2 190:8 196:4 223:7,7
singling (1) $55: 3$
sir (62) 1:3,7,9 16:1,11 18:22 63:22 64:3,14 66:4,11,19,21 88:14,17 89:2,7,11,17,21 90:12,14,21,24 91:3,7,11,14,16,19 121:19,21 122:1,7,12,14 170:12,15,17 179:17,21 182:7,11 190:13,16 191:1,5,8 192:19 193:7,10,21 227:21,24 228:3,15,20 230:13,19,22,24 231:4 sit (4) 1:10 91:16

141:8 216:17 slopes (1) 163:24 slowly (2) 18:24 129:17 slumping (1) 167:17 small (4) 6:14 58:25 127:17 181:24 smaller (1) 182:24 snags (2) $216: 11,20$ soffit (11) 105:20,24 106:11,16 110:19,21 112:7 129:21 171:9 186:1,6
solid (3) $28: 20$ 35:2 114:13
solution (5) 113:6 117:14 131:13 153:19 154:12
solutions (5) 95:6,12 129:3,7,10
somebody (7) 16:14 48:11 104:10 112:13 140:12 147:23 194:22
someone (27) 56:11 59:5,7 69:25 78:20 86:7 91:4 102:11 104:3 105:6 138:6 139:17 140:15,17,20 141:8 143:10 150:4 151:17 156:21,23 174:22 175:22 196:4 208:1 212:2 215:20 something (28) 29:2 33:17 39:12 64:17 71:18 97:1 103:11 117:7 124:22 125:20 127:18 131:10,13 133:18,24 141:1 146:16 147:25 151:4,5 165:2 172:24 186:15 188:1,22 193:14 194:21 196:3
sometimes (6) 4:11 69:15 88:21 97:3 128:22 129:9
somewhere (9) 114:3 134:15 146:12 149:22 153:10 164:23 194:13 204:2 210:3
soon (1) 178:4
sort (18) 14:3 15:1
19:24,25 29:25 33:2 41:7 65:17 84:24 98:15 102:16 127:21 131:15 140:17 147:1 160:24 170:17 192:9 sorted (1) $74: 15$ sorts (1) 84:4 sound (1) 174:3 source (1) 103:19 south (2) $38: 6$ 80:19 spandrels (4) $34: 25$ 36:8 67:14 89:24 spanned (1) 110:19 speak (10) 5:12 17:6 18:24 82:10,11,12 85:1 87:14 129:16 215:10
speaking (1) 129:13 special (2) $145: 22$ 229:17
specific (14) 15:18 24:2 35:5 55:1,13 62:16 96:22 117:22 124:17

144:8 145:2 156:19 165:8 171:15
specifically (4) 115:18 132:19 224:13 227:16 specification (18) 41:25 42:4,6,9 43:16 118:2 131:15 155:17,23,24 165:3,6,10,21 167:1,20 176:3 197:22 specified (9) 14:13
42:16,17,19 155:19 166:18 168:17 185:22 207:13
speed (2) 198:3,21 speedily (1) $66: 2$ spend (1) 202:15 split (1) $213: 13$ spoke (4) 56:19 84:19 85:4,7
spoken (4) 86:13 100:6 101:15 102:21 spread (4) 53:7 96:11 131:23 148:17 square (2) 10:18 177:18 squared (1) 10:6 squareedge (1) 178:22 squeaky (1) $87: 4$ squeeze (1) 159:10 stacked (2) 35:17 199:11 staff (2) 70:3 83:17 stage (17) 8:14 12:1,24 30:22 32:1 49:2 86:13 107:21 131:8 133:1 134:24 140:19 176:8 216:5,6 223:7 228:10 stages (7) 54:17 88:9 135:8 213:13,14 224:22 226:11 standard (22) 13:13,20 15:6,14,17 32:13,20 105:23 108:2 129:1 136:16,19,21 137:1,21 138:2,13,15,19 169:11 229:23 230:6 standards (3) 137:13 138:1,11 standing (1) 198:10 stands (1) 205:16 staring (2) 117:8 179:12 start (11) 32:1 48:5 62:20 71:5 93:23 128:18 131:12 169:13 208:2 209:24 220:15 started (7) 37:1 38:10 43:10 80:24 171:1 206:1 209:19 starting (4) 150:14 163:18 187:3 208:10 stated (2) 204:20 208:11 statement (73) 2:9,13,15,19,23 3:2,7,12,14 4:1 6:11,12,24 7:3,17 8:7 13:2 14:6 19:7,15 26:12 29:16,17 38:21 68:25 77:11 81:1,24 92:5,11,22,24,25 93:1,3,5,7 94:14 95:9 98:20 99:16 105:14 106:10 110:15 111:20 115:2 116:7 118:5

120:5,7 126:23
128:16,25 130:22 132:1 139:5,9 151:24 156:8 162:3
173:9,11,25 185:19 189:12 211:17 212:14 214:5 219:10,15 224:20 226:23 227:9 statements (7) 1:25 7:1 92:16 93:8,15 123:10 194:10
stay (4) 123:5 132:21 205:3,24
stayed (2) 119:18 193:11
staying (2) $123: 8$
161:12
stays (1) 118:24
steel (3) $22: 1$ 161:4,9
step (1) 108:8
steps (8) 54:6 68:6 69:17 176:13 203:16 204:3 207:7 222:8
steve (5) 120:19
121:4,5,8 199:23 stick (3) 130:3 160:3 179:25
still (28) 53:24 75:22
79:23 98:9 104:8
125:19 138:21,22 146:14 162:18 177:12 178:18,23 179:1 182:2 189:10,21,23 196:25 197:1,11 198:10 200:5 205:18 206:9 218:16 222:2,16
stock (1) $228: 5$
stolen (1) 194:14 stop (6) 53:9 128:3
131:12 154:23 168:12 231:9
stopped (2) 49:16 145:18
stopping (2) 140:12,16
stops (2) $39: 23$ 40:3
stored (1) 62:24
storeys (3) 119:23,24 148:25
story (3) 116:8 123:8 191:21
straight (5) 51:4,19 162:16 200:3 217:14 strategic (1) 202:6 strategy (7) 115:1 147:6,17 149:22 151:18 170:6 175:22 streamline (3) 187:8 197:18 209:5 streams (1) 198:7 stress (1) 117:8 stretch (1) 140:9 stretched (1) 181:21 strip (15) $40: 15,25$ 41:5,16 44:3,25 45:9 53:17,19 60:5 61:1,18 63:1 181:18 182:15 stripping (1) 212:8
strips (1) 177:13 structural (3) 4:16 50:4,14
structure (2) 22:2 47:2
structures (1) 47:3 struggle (2) 104:7

129:16
struggling (4) 74:15 105:6 196:25 197:11 stuck (12) 130:1 159:20,22 178:4 183:14,17 184:4,6,8,10 193:18 208:17
studio (7)
134:7,10,13,24 144:8
147:13 165:4
stuff (16) 15:4 17:13
18:20 22:5 36:18
37:12 46:3 58:14,15 70:12 74:1,3,3 84:25 86:9 87:11 stupid (2) $85: 16,18$ style (1) 42:9 sub (1) $174: 1$ subcontract (1) 69:4 subcontracted (1) 8:13 subcontractor (1) 103:20
subcontractors (4) 9:7 137:2 203:10,14 subframe (1) 223:14 subject (5) 101:9 123:13 136:1 176:22 220:20
submitted (2) 9:2 20:14 subsequent (1) 136:5 subsequently (2) $12: 16$ 105:4
substantive (1) $7: 7$
substitution (2) 37:19 156:18
suddenly (2) 37:3,5
sufficient (3) 185:25 186:5 198:1
suggest (6) 142:22 168:7 183:23 185:13 215:13 222:19

## suggested (4)

112:3,13,24 147:20
suggesting (1) 103:10 suggestion (2) 112:20 113:6
suit (3) $50: 22$ 51:24 167:12
suitability (2) 69:19 152:18
suitable (2) 121:19 203:18
suited (1) 203:9 sum (2) 11:13 19:10 summarise (1) 29:19 sums (1) 204:22 sundry (1) 167:3 supervised (2) 211:3,6 supervising (1) 6:7 supervision (2) 68:24 211:2
supervisors (1) 135:11 supplied (3) 26:18 37:7 65:12
suppliers (1) 156:11 supply (2) 16:19 141:20 supplying (2) 43:14 140:9
support (19) 50:5,7 109:13 110:21 111:15 112:6 127:21 157:21 159:15 160:17,19

163:1 168:11 169:19 179:13,15 186:1,5 194:16
supported (6) 109:5,17 179:3 180:20 182:25 188:13
supporting (1) 113:24 supportive (1) 181:18 supports (1) 167:15 suppose (2) 52:10 151:7 supposed (5) 16:15 21:18 176:11 206:18,19
sure (41) 12:11 17:7 18:19 23:9,19 25:20 46:2 47:13,18 48:5 56:4,11 79:15 81:20 88:3,4 100:15,15 102:6 103:2 106:5 118:24 122:25 139:19 146:19 154:10 156:20 182:1 183:25 194:9 197:16 198:18 199:1 201:25 207:9,10,11 209:7 215:6 222:25 225:8
surfaces (1) 61:12 surprised (3) 63:22 65:13,16
surround (19) 105:17,19 106:14 108:21 110:17 116:12,13,15 120:21 133:16 157:23 164:15 166:6 172:4 185:10 187:11 188:9 211:3 226:3
surrounding (2) 111:1 145:10
surrounds (56) 17:24 99:9,22 102:4 112:6 114:18 115:6 116:11 117:15 118:10,19 123:14,16 133:11 134:2,7 135:14,19 137:22 138:17 139:23 141:16 142:19 149:13 165:22 166:3,13,18 169:24 170:1 171:21,25 172:16 175:14 176:14,19 185:16 191:21 193:24 194:2,25,25 195:8 197:12 209:23 215:9 219:19 220:4,11 222:21 224:11,16,19 225:7 226:14,17 surveyed (1) 202:5 surveying (1) 12:11 surveyor (1) 141:11 surveyors (1) 206:17 susceptible (1) 170:13 swap (3) 75:16 76:4 148:6
swapping (1) 157:1 sweep (2) 88:16 227:23 system (20)
31:9,10,14,15,18 32:14,15,15,17 47:4 54:24 55:6
70:15,23,24 77:12 82:12 83:8 149:9
154:9
systems (1) 53:5
$\qquad$ 12:2 14:23 120:10
204:21
table (2) 77:19 225:21 tackle (2) 123:24 202:21
tackling (1) 84:3
taff (1) 24:20
taffs (1) 83:18
taken (15) 7:16 20:15 57:13 60:14 68:6 112:24 126:25 166:7 175:22 186:18 189:17 198:17 209:8 223:3,12
takes (1) 113:2
taking (6) 97:6 100:18 135:18 150:14 197:1 211:12
talk (11) 22:9 25:19

211:18 214:16 218:3 223:12 224:14
230:10,24 231:1
themselves (8) $28: 9$ 30:2 70:12 73:2 80:17
192:6 203:16 218:18
thereby (1) 184:16 therefore (5) $30: 10$ 38:1 187:15 210:1 217:19
theres (18) 2:4 9:8 30:14 49:24 86:22 108:7 114:4 125:7 130:16,17 138:5 148:9 151:19 176:7 181:5 193:4 200:20 214:15
thermal (2) 127:21 159:18
thermapitch (4) 142:20 152:7 156:9 158:21
theyd (7) 52:12 108:24 111:14 124:6 195:24 218:13,15
theyll (1) $124: 9$
theyre (14) 20:12 47:18 75:8,10,12 99:4 109:21 136:17,17 138:18 143:5,6 151:10 154:24
theyve (5) 48:18 60:23 105:5 202:18 223:8
thicker (13) 177:25 178:12,12,14,14,23 179:5,6,24 180:14 187:8 188:10,11
thickness (7) 127:17,24 141:22 167:12
169:12,14 195:6
thicknesses (1) 42:25
thin (1) $41: 6$
thing (12) 9:9 13:25 14:3 19:25 42:20 63:3,6 67:5 74:24 104:4 108:7 153:12
thinking (3) 127:4 192:24 194:21
thinks (3) 88:18 180:25 185:8
thinnest (1) 169:13
third (6) 7:14 24:18 30:15 93:5 140:2 201:18
though (2) 106:23 165:11
thought (23) $24: 1$ 36:13 39:11 80:8 86:10 122:22 123:1 138:12 141:19 148:7 171:17 179:24 192:9 194:1 198:24 199:21 203:9,23 206:21 210:17 218:2,6 228:1 thoughts (2) 115:21 199:20
thousand (1) 124:22
thread (2) 73:6,9
three (11) 36:2 92:16 107:11 113:14 116:25 123:17 135:1 178:22 184:1 198:9 216:22
threeday (1) $5: 5$
through (30) 5:2 8:18 11:17 33:14 70:13 74:10 82:9 98:13

100:17 105:1 116:8 123:1 124:14 143:19 145:18 157:3 164:24 166:1,5,15,19 171:2 183:1 185:2 210:9 214:1 217:19 218:24 219:5 223:2
throughout (4) 69:6 83:10 153:12 210:1 thursday (1) $223: 9$ tickets (3) 72:19,19,20
tiding (1) 177:12 tie (1) 52:24 tight (3) 50:22 123:21 201:20
tightly (3) 54:8,14 167:14 tilted (1) 132:23 timber (14) 112:6 114:18 118:9 160:10,19 163:12,19 164:15,19,22 191:23 192:22,24 220:3 time (127) 3:3 4:19 7:1 9:9 10:9 12:10 13:6 16:21 17:2 24:5 25:12 26:21 27:16 32:11,25 33:8,19 34:20 35:17 38:3 39:7 40:20 41:2 45:13 46:7,14 53:3,25 58:25 59:6,7 62:12 64:15 65:4,9 67:2,16,18 70:9,13,19 71:18 72:16 75:19 78:16 79:17 80:25 82:15 85:21 89:12,25 90:9 94:17 95:3 97:2 98:17,20 100:6 101:4 104:8,21 107:25 108:8 111:17 113:23 117:13 119:2 124:11 126:1 128:15 131:19 136:24 138:24 140:19 142:23 144:25 145:1,21 146:5,23 148:3,14 149:25 150:2,9,21 151:6,12 153:20 155:22 156:3,21 162:1 166:17 168:2,5,20,25 169:5,7 171:6,7 175:25 183:24 186:11,12 190:16 192:15 193:18 194:7 197:3 198:2 200:13 202:5 203:8,23 204:21 205:3
210:2,15,16,16,20,24
215:10 221:5 225:18 times (16) 4:12
38:10,16 59:3,4 77:1 79:13 105:2 106:10 116:4 132:4 191:11 214:3 216:22 219:21 226:20
timescale (3) 105:8
201:15 219:7
tmo (4) 25:19
224:8,10,15
tmo10009962 (1) 78:9 today (16) 1:4,17,18 3:20 60:19 91:23 93:20 99:14 120:21 200:1 204:19 205:16

209:7 217:9,10 224:1 todays (1) 1:4 together (11) 42:1 78:10 108:12 115:8 117:20 125:5 127:5 143:13 183:17,22
210:21
toing (1) 206:16 told (17) 17:18 37:18 48:23 51:8 67:1 88:5 101:17 102:22 108:12 114:24 124:6 128:24 171:7 176:9 195:25
217:17 227:5
tomorrow (6) 177:1
187:5 199:21,24
231:1,9
tonight (1) 199:19
too (14) 17:22 18:20
35:19 81:20 103:20
108:7 109:1 159:10
166:14 177:15 190:14
203:24 226:20 227:8
took (15) 8:2,20 12:21
17:11 45:20,21
68:11,12 85:23 99:25 111:24 135:9 177:10 219:7 223:5
topic (8) 27:5 64:12
68:23 81:2 83:12
144:22 172:6 225:11 topics (1) 55:2
total (2) 73:12 97:5 totally (3) 33:15 96:23 202:18
touch (1) 110:12
touched (2) 96:12 97:1 towards (9) 30:6 52:10 76:13 82:17 100:25 150:17 158:10 165:11 196:23
tower (37) 4:20 7:25
8:12 9:24 10:3,5
13:24,24 19:10 21:2 34:24 65:10 70:20 72:19 81:18 95:4,21 97:17 99:13,24 100:3,11 107:3 135:21 136:1,7 139:12 140:6 147:4 149:14 161:24 174:5 175:7,18 185:9 225:23 226:25 towers (1) 193:24 tp10 (2) 128:1 142:21 track (6) 191:24
193:8,11,16,17,20 trade (1) 74:4
trading (1) 129:4 traditionally (1) 110:9 train (3) 71:2 72:3,13 trained (4) 31:24 72:25 77:23 78:1
training (32) 3:24 4:24 5:2,14,18 32:5 38:22 46:4 62:16 63:4 68:24 70:21
72:11,13,17,18,23 73:1
95:5,12,13,14,17,18,19 96:2,5,6,9,9 141:4 212:1
transcriber (4) 18:22
129:14 182:9 231:6
transcribing (1) 1:23
transcript (1) 139:9 transpired (1) 212:23 trees (1) $36: 18$ trial (5)
113:7,10,11,16,20
trialled (1) 122:25 triangleshaped (1) 162:19
tried (4) 113:23 115:7 203:4 217:18 trigger (1) 153:8 triggered (1) 152:22
trim (1) 217:12
trimmed (3) 50:22 51:14,24
trimming (8) 52:1 101:10 103:19 109:9 177:10 207:25 220:25 223:25
trims (7) 177:2,14 208:9
217:10,13,15 224:3
trouble (1) $74: 25$
true (10) 2:11,21 3:4,16
51:19 61:25 87:3
92:13 93:13 170:12
try (24) $1: 22$ 5:11,12 18:24,25 80:12 92:2 105:11 112:14 117:20 119:5 121:9,9 129:16 132:13 137:25 139:3 160:23 171:18 180:10 182:10 187:8,22,24 trying (18) 1:24 90:8 96:16 102:8 109:2 114:5 115:8 171:6 183:1 184:6 197:17 198:11 199:9 202:6 208:20 214:16,21,24 tuesday (1) $1: 1$ turn (39) 9:13 10:2 11:6 20:23 24:14 30:1,13 44:10 73:6 76:2 77:10,17 78:9 83:12 93:5 99:16 103:7 105:13 116:6 123:11 124:12 125:3 128:14 132:17 135:23 136:19 140:1 165:2 167:1 176:20 184:11 188:24 189:1 201:15 204:14 207:21 215:21 220:13 225:11
turned (3) 44:2 46:12 75:13
turning (2) 123:8,9 turns (1) 227:10 twice (2) 219:23 224:21 twisted (1) 51:15 twoday (1) 220:5 twothree (1) 204:9 type (7) 28:16,22 31:17 47:4 112:8 137:3 171:16
types (6) 31:16 32:22 34:23 43:25 44:11 145:3
ultimately (1) 154:22 ultraprofessional (1) 87:4
unacceptable (4)
64:8,10 85:6 196:1
unbranded (1) 35:12 unchecked (1) 214:13 underneath (8) 109:17 111:11 162:18 180:15 183:24 194:8,11 225:7 underside (1) 159:21 understand (23) 40:22 43:24 53:4,8,10,20,22 70:25 87:11 97:10 127:3 132:18 137:19 138:7 140:16,21 151:6 171:5,6 177:1 193:22 200:5 215:17
understanding (20)
1:19 9:4 40:9 48:22 53:15 57:8 78:23 87:24 91:24 96:7 97:5 138:24,25 143:21,24 144:3,5 145:7,11 229:10
understood (7) 11:1 54:8 58:19 79:3 146:24 171:6 219:4 undertake (4) 100:2 135:20 139:11 213:1 undertaken (4) 4:24 5:14 210:25 216:11 undertakes (2) 7:8 94:20
undertaking (1) 99:21 unfaced (1) 168:11 unfilled (1) 162:25 unfinished (1) 200:4 unfortunately (2) 85:16 177:11
unique (4) 119:7,9,9 229:15
unit (12) 99:23 110:25 185:21 190:8 197:15 202:3,3,5,9 218:12,12 229:11
units (14) 16:23 118:13 123:18 198:8 206:6 210:7 211:11 212:22 213:12 214:3
221:14,16,18 223:10 unless (1) 19:21 unsure (3) 114:3 123:17 136:12
until (8) 40:13 43:6,10 44:6 48:20 54:1 67:12 231:13
unusual (1) 214:8 update (1) 221:3 upon (1) 13:11 upper (1) 175:8 upset (1) 199:25 upvc (34) 17:24 18:7,9 106:12 109:8 111:11 129:23 132:7 135:4 157:23 159:21,22,24 162:23 170:1,13 $171: 8,10,11,16,20,25$ 172:4 177:16 179:7 180:15 181:14 191:25 194:1,8 209:11
213:6,22 225:7 upwards (3) 52:17,18,19 urgently (1) 221:3 used (80) 5:23 8:19 9:7 17:19 27:17,21 28:14 29:19,21,22 32:15 33:2 34:24

37:19,22,22 38:15 41:4,5,15,18,19 47:4 54:23 60:25 61:14,17 69:5,15 71:4 110:9,20 111:14 112:5,9,14 118:3 123:6 126:22 131:15 139:23 141:15,19 142:15,18 145:4 146:1 152:2,6 154:14 156:1,10,13 157:18 158:19 159:14,21 171:8,11,12,25 172:9 173:6 177:16,25 179:5,22,23 190:3 194:19,25 195:21 196:16,18 203:22 204:13 206:22 227:4,13,14 useful (1) 230:16 usher (6) 66:12 89:3

65:17 90:5 117:2 132:22 143:2 180:20 210:5 215:4 218:13 wedged (1) 164:13 wedging (1) 195:1 wednesday (3) 208:10 221:15 231:14 week (12) 43:13 95:13 128:21 198:8 208:11 210:8 214:14 217:20 219:21,24 221:17 224:21
weekly (1) 221:4
weeks (4) 8:23 192:13 208:14 209:25
weight (1) $16: 17$
weights (1) 110:9
welcome (1) 1:3
welcomed (1) 199:9
went (19) 5:2 17:12 22:3 51:15 56:17 68:14,16 70:13 80:23 141:9 178:19 179:12 182:5 185:16 188:19 197:18 211:9 213:22 223:2
werent (20) 14:23 22:3 32:19 49:2,4 54:3,14 59:5 65:21 67:7 81:12 97:6 103:25 144:18 150:24 191:18 192:15 200:24 203:6 226:6
west (7) $36: 15,16,21$ 37:22,23 38:6 80:17
weve (35) 17:12 32:15 33:2,12 40:3 41:4,5,15 42:14,14 54:1 58:13,14 60:23 64:5 111:2 115:14 124:9 129:8 139:3 142:3 151:10 160:13 162:13 163:7 176:10 180:3 182:5 186:20 189:19 194:14,21 196:6 201:16 209:5
whatever (6) 79:11 146:25 171:17 175:3 180:7 214:24
whats (9) 24:17 103:11
117:24 125:25 147:15 157:22 183:14 213:17 225:13
whatsoever (1) 15:13
whereas (1) 110:10
wherein (1) 61:10
whilst (3) 18:4 112:2 177:17
white (10) 18:9
78:14,16 82:16 158:11 219:11,17 220:2,10 223:17
whites (1) 79:5
whoever (6) 15:2 69:23 105:7 108:10
113:13,17
whole (11) 19:22 26:4 49:9 63:19 143:18 159:14 165:15 181:21 184:12 200:17 216:21 whos (1) 140:17
whose (1) 99:20
wide (2) 181:16 189:20 width (4) 49:9 109:15

118:11 184:16 wife (1) $6: 15$ wiggly (1) 172:20 window (179) 5:4 14:17 15:23 16:2,12 17:8,19 18:13 22:25 23:4 42:8 49:6,7 53:6 64:19 65:2 99:9 101:9 102:4 103:19 105:16,19,21 106:14 108:6,21 109:20 110:17,23,25 111:9 112:3,5,6 114:18 115:6 116:11,12,13,14 117:15 118:9,19 119:11 120:2,13,21 123:14,16 125:11,21,21 126:13 128:8 129:22 130:12 132:9,10 133:11,16 134:2,7 135:13,19 137:22 138:16 139:23 141:2,15 142:6,18 148:16 149:13 150:10 151:11
157:10,11,11,12,19,19,2 158:10,10,11 160:6,10,19 161:3,9,16 162:5 163:1,7,12,20 164:1,19 165:22 166:3,13,17 169:24 170:7 171:12,20 172:4,10,15 173:3 175:3,14 176:14,19 177:2,10,19,24 178:10,16,17,18 179:18 180:10,13,21,21 181:4,5 184:17 185:10,16 186:12,13 187:7 189:4 191:21 192:25
193:12,13,14,24 194:2,24,25 197:1,12,17 199:10 200:4 201:4,5 202:14 206:6 208:9 209:22 211:3,18 212:6 215:9 217:10 219:18 220:3,11,20,25 222:21 223:25 224:11,16,19 225:6,24 226:3,14,17 227:5,13,15 windows (82) 4:12,15 5:24 11:18 14:10 16:3 17:10 18:1,14 21:17 23:11 24:12 38:24 46:24 64:11,24 65:10,14,16,22 83:20,21 94:12 99:23 111:8,16 114:18,25 118:7,9,11,16 119:1,4,4,17 120:1,11 125:13,15 130:24 135:5,10 147:4 148:21,22 149:3,7,11,19 150:9,22,25 151:10,19 159:9 160:13 161:5 162:11 168:9 174:15 175:20 176:11 178:3,22 179:2 183:13

184:3 194:16 196:17 198:16 204:20 208:1 210:2 213:7 217:14 218:14 220:3
225:16,22 226:1,7
wing (1) $70: 2$
wish (1) 206:7 withdrew (2) 90:23 230:23
witness (44) 1:25 2:13
3:25 6:11,12,24 8:7 14:5 26:11 29:16 35:11 38:21 66:10,20 81:1,24 89:1,6 90:20,23,25 91:12,18 92:5 98:19 99:16 111:20 116:6 121:25 122:13 139:5 151:23 156:8 185:18 190:24 191:7 211:17 212:14 219:9,14 226:23 230:18,21,23 wont (3) 83:24 85:9 129:9
wooden (1) 125:11 wool (13) 61:11 65:1 167:11,25
168:3,4,8,10,15,21 169:2,16,22

## work (153) 4:3,6,14

 5:19,23 7:8 8:13 9:8 10:18 11:14,17 12:2,10,11 13:12,21 14:3,10,12,13,24 15:23 16:6 17:1,7,7,9 18:5,13,14 19:11 20:16,18 21:21,25 22:3,9,13,14,18,20 24:20 25:4,9,21 45:16 46:2 52:15,16,22 53:16 54:13 59:11 60:21 65:17 69:2,4,19 72:8,9 77:8 78:25 79:2,9,10,14 83:1 86:2 95:14 96:14 99:9 104:25 105:4 119:12 120:10 121:10 127:18 132:2 133:7,10 134:11,14 135:7,7,12,19 137:18,22,23 138:10,12,16,20 139:1,12,21 141:2,4 150:10,13,13 151:2 153:9 157:5 158:3 159:3 161:2 165:10 167:4 174:4,14 175:9 176:19 184:6 187:9 188:13 194:15 198:2 199:5,22 202:25 203:5,17 204:11 205:21 206:9,10 207:8 209:22 210:1,9,15,25 211:23,24 212:3,4 214:6,10 215:3,9,18 216:2,5 218:18,24 219:1,5,12 220:11 221:22 224:19 231:8 worked (18) 4:2 26:18 31:15 45:13 57:5 68:16 78:16 85:22 93:25 94:4,7 97:16 98:14 102:15 119:3175:24 193:2 215:11 working (27) 8:4 11:11 12:9 19:24 25:10,16,25 32:25 38:3,5 45:24 52:11 54:7 56:16 62:8 64:15 70:8,11 75:1,24 140:19 168:5 186:13 188:16 199:7 210:5 218:16
workmanship (10) 15:14 57:18 58:1 137:8,11 217:1,17 229:7,22 230:5 workmen (1) 141:3 works (84) 8:15 10:13
13:13 14:1,16,16 16:13 64:5,6,8 78:20,21 94:21,24,25 95:4,20 99:10,12,22 100:2,9,11,13 101:10,14 102:2 104:1,9 116:16 120:5,7,10 129:19 133:16 135:4,21 139:7 147:3 149:2 150:7,16 152:2 153:16 165:24 172:25 173:17 175:7,8 185:20 186:4 197:2 200:12 201:7,14 203:9 204:4 205:16,25,25 206:21 207:1 209:19 211:2,3,18 212:17,22 215:22 216:10 218:11,19 219:11,13,18,20 221:22 222:9,9,20 223:2 224:25 226:8,18 wouldnt (26) 25:5 27:20 37:5 43:6,10 63:9 72:24 75:13 80:8 84:24 85:18 97:3 104:16 115:7 119:19 121:15,16 132:21 133:20 162:15 169:18 170:17 181:20 182:15 218:25 228:1
wouldve (1) 155:14
wrestling (1) 205:21 writes (1) 74:11 written (6) 78:13
117:24 126:9 139:2 153:2 217:7
wrong (4) 58:9 83:22,23 85:9
wrote (1) 127:15
x (5) 11:18,19 21:23 64:1 130:15

| $\mathbf{Y}$ |
| ---: |

yeah (221) 2:10,20 3:3,10 4:5,23 5:10 6:17 7:2,4,13,15,15 8:6,24 10:7,11,14,25 11:25 12:7,18,20 14:21 15:4,25 16:15 18:10 20:4,13,21 21:8,13 22:8,21 24:1,13,22 25:7 27:25 28:21 29:5,24,25

31:4,14 32:4,18 33:15 34:5,5,11,15,19,20 35:3 36:7,10,23 37:13,16,17,24 39:3,3,9,14,18,25 40:8,19 41:15 42:24 43:3,5,15,23 45:2 46:21 48:1,25 50:9,16,23 51:2,12,18 52:3,20 53:9,9,14 54:2,11 55:11,20,23 56:1,15,21 57:11,15,24 58:3,4 59:3,8,14,18 60:8 61:4,21 62:19 64:10 67:4,13,17,21 68:3,21 69:8,16 70:6 71:1,8,10,24 72:5,14 73:1,13,15,23,23 74:19 75:9 77:4,15,25 78:12 80:2,24 81:11 84:14 86:25 87:20 88:3,4,9,11 96:7 98:6,23 100:7,13 101:25 102:5 103:16 104:5 106:5 107:9 109:12 111:12 112:16 116:4 117:1 119:18 122:13 124:24 125:9 126:3 127:2,9,13 128:10 129:18 132:11 142:1,14 146:10 147:6 149:20 151:13 153:5 157:17,24 158:14,23 159:2,12 160:12,17 161:21 162:2,12,20 163:9,14 170:21 172:15 173:18 176:1 178:17 181:9 183:21 187:13,17 188:10 189:20 193:14 195:11 198:13 199:7 207:2,4 209:13 211:8,21
213:11 215:25 224:12 year (1) $21: 12$ years (5) 4:4,21 94:5 107:17 130:15 yellow (4) 86:15 157:22 164:3,11 yep (7) 99:11 121:25 130:5 159:7 167:5 204:24 208:4 yesterday (13) 6:23 23:13 27:23 34:12 35:24 36:13 51:13 56:2 58:24 60:18 120:20 121:4 191:23 yet (2) $101: 15$ 102:2 youd (6) 27:18 52:19 102:13 193:18 224:24 230:8
youll (2) 42:6 89:3 youre (43) 5:12 8:9 14:7,15 20:7 21:11 26:13 33:13 37:23 38:22 42:7 66:7 67:20 71:13 83:5,14 106:3,9,21 108:3 110:7,11 124:4 128:10 129:9,13 130:3 138:9 146:19 148:11 155:9,11 158:25 162:21 182:8,23


| $\begin{aligned} & 25 \text { mil (3) 127:16 128:1 } \\ & \text { 168:10 } \end{aligned}$ | $\begin{aligned} & 7 \text { (3) } 2: 5 \text { 38:20 69:1 } \\ & 745 \text { (1) 187:21 } \end{aligned}$ |
| :---: | :---: |
| 25 millimetre (2) |  |
| 142:19,20 | 8 |
| 26 (2) 76:14 92:7 |  |
| 27 (8) 2:16 176:18,21 | 8 (4) 25:9 69:5 70:22 |
| 185:18 187:1 189:16 | 81:3 |
| 196:22 199:15 | 80mil (2) 42:23 43:1 |
| 270000 (1) 19:10 | 85 (1) 225:23 |
| 28 (2) 20:25 217:6 | 852 (1) 60:1 |
| 29 (9) 1:1 11:8 21:11 133:4 188:25 209:4 |  |
| 215:23 229:6,20 | - |
| 2a (1) 8:9 | 9 (3) 95:9 157:6 224:2 |
|  | 90 (1) 124:22 |
| 3 | 91 (2) 232:4,5 |
|  | 910 (2) 163:6 172:19 |
| 3 (11) 3:25 6:24 9:22 | 913 (1) 157:8 |
| 13:1 30:13 73:8 99:16 | 92 (1) 163:17 |
| 205:14 209:17 217:15 | 93 (1) 160:7 |
| 223:21 | 99 (1) 161:14 |
| 30 (2) 175:2 231:14 |  |
| 30minute (1) 174:21 |  |
| 32 (1) 4:21 |  |
| 321 (1) 191:2 |  |
| 322 (1) 156:8 |  |
| 325000 (2) 19:12,17 |  |
| 335 (3) 190:19 191:1,4 |  |
| 34 (2) 60:23 204:20 |  |
| 35mil (1) 181:16 |  |
| 36 (1) 204:20 |  |
| 36000 (1) 24:20 |  |
| 362 (1) 40:1 |  |
| 367000 (1) 20:17 |  |
| 38 (1) 211:16 |  |
| 383 (1) 211:22 |  |
| 4 |  |
| 4 (11) 34:25 73:874:24 |  |
| 76:15,18 116:7 118:6 |  |
| 137:6 173:24 221:16 |  |
| 227:1 |  |
| 411 (1) 158:8 |  |
| 412 (1) 158:8 |  |
| 424 (1) 228:17 |  |
| 435 (3) 228:9,15,19 |  |
| 438 (1) 231:12 |  |
| 44 (2) 139:10 212:15 |  |
| 45 (2) 212:15 214:4 |  |
| 47 (1) 219:9 |  |
| 4d (1) 26:13 |  |
| 4×2 (3) 191:23 |  |
| 192:22,24 |  |
| 5 |  |
| $\begin{aligned} & 5 \text { (7) 6:12 7:6 19:8 } \\ & 77: 16 \text { 126:11 216:5,6 } \end{aligned}$ |  |
| 500mil (2) 181:19 182:2 |  |
| 53 (2) 217:10 229:3 |  |
| 6 |  |
| $\begin{aligned} & 6 \text { (5) 31:21 49:23 } \\ & \text { 123:13 126:2 133:3 } \end{aligned}$ |  |
| 60 (1) 175:3 |  |
| $\begin{aligned} & \text { 60minute (2) 151:21 } \\ & \text { 174:21 } \end{aligned}$ |  |
| 60 mm 100 mm (1) |  |
| 118:12 |  |
| 7 |  |


[^0]:    please.
    A. Okay.

    MS GRANGE: Yes.
    Now, I want to ask you a few questions about payment, since you were the one at Osborne Berry that dealt with that. If we can go to Osborne Berry's position statement, this is \{OSB000000084\}, and look at paragraph 5. So there you say:
    "[Osborne Berry] initially placed a bid for the refurbishment of Grenfell Tower in the sum of $£ 270,000$. This figure rose due to extra work required to approximately $£ 325,000$."

    Now, can you help us as to how that approximate figure was calculated when you put that in the position statement?
    A. The first figure or the later figure?
    Q. The later one, the $£ 325,000$. You say there it's approximately. Can you help us as to how that figure was arrived at?
    A. It's just an approximate figure. I can't remember, unless I had all the invoices in front of me, to know exactly what the whole figure was.
    Q. Yes.
    A. But that was just a working out of a rough sort of gauge, again, approximate figure sort of thing.

