SCOTTISH HOSPITALS INQUIRY

Hearings Commencing
13 May 2025

Day 1
13 May 2025
Emma White

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10.03

THE CHAIR: Good morning, both to the legal representatives of core participants in the hearing room in Edinburgh, and to those who are following the proceedings of the Scottish Hospitals Inquiry online. This is the first day in the first set of hearings which have been fixed for this year. We will be sitting four days a week for this week and the following two weeks. We will resume on 19 August for the second session of hearings, and we will sit for two weeks. There will then be a break, and we will resume for what is planned as the final session of hearings in the Inquiry beginning on 16 September and concluding on 10 October.

This has been explained to legal representatives previously but, as I say, the plan is that there will be three sessions. With that, at least from the current perspective, that will conclude our oral hearings in the course of the Inquiry.

Now, during the session beginning today, witnesses will be taken both by Mr Connal KC and Mr Mackintosh KC, splitting the witnesses between them. This morning and this afternoon, I think we have one witness, Ms White.

MR CONNAL: Indeed, my Lord.

THE CHAIR: And with that, by way of introduction, I would ask Mr Connal to lead his first witness.

MR CONNAL: Thank you, my Lord. My first witness is, as you say, Ms Emma White from IBI or Nightingale Associates, depending on which label applies at a particular time, but the Architects.

THE CHAIR: Good morning, Ms White. Now, as you understand, you're about to be asked questions by Mr Connal, who's sitting opposite but, first of all, I understand you're prepared to take the oath.

THE WITNESS: Yes.

Ms Emma White

Sworn

THE CHAIR: Thank you very much, Ms White. Now, you have a good carrying voice, which is very encouraging for me because my hearing is not what it was but, in the course of answering, could I just encourage you maybe to speak a little more slowly than you would in normal conversation, and maybe a little bit more loudly, although the microphones are there to amplify the sound and should be sufficient.

This morning, we will sit until about

half past eleven and we'll take a coffee break and resume after about 20 minutes, come back and break for lunch at one, take an hour for lunch and then resume again in the afternoon. But if at any stage in the course of your evidence you want to take a break for whatever reason – and you don't need to tell me what the reason is – please feel free to do that. Please feel that you're in control of the process. Now, Mr Connal.

Questioned by Mr Connal

Q Thank you, my Lord. Good morning, Ms White. Just to get one of the formalities out of the way, first of all, you've produced a very extensive witness statement, which has been provided to the Inquiry. Are you content to adopt that as part of your evidence at this Inquiry?

A Yes, I am.

Q Thank you. Let me say now, we acknowledge that this was a very complex, sizable project, and that, in effect, much of it is material that we are not looking at here. So you've laid out a lot of material for us, some of which is not directly focused on our issues, so we acknowledge that, first of all. I want to ask you a number of questions in due

course, focused on trying to find out what seemed to work well and what didn't, if I can put it as colloquially as that, so that perhaps recommendations can be made in the future to avoid any issues. I think you're aware that as part of the background to the Inquiry, just to keep to the big picture, one ward was basically rejected by its proposed users and had to be worked on, and another ward was later found, in the views of some the Inquiry has heard of, not to be in a satisfactory condition. That was 4B and then 2A.

Just from your perspective, were there any special challenges to this project? What sticks in your mind?

A I think, in reality, the scale of the project combined with the speed of how we had to work were probably the biggest challenges, I think, yes, for sure.

Q What dictated the speed at which you had to work?

A The programme was set through the-- Well, if I say abbreviations, I apologise, I'll explain. The invitation to participate in dialogue or the bid stage stipulated the programme times that we were to comply with. So in order to be a compliant bid, you needed to adhere to those timelines.

Q The complexity was an issue as well, was it?

A Yes, complexity was an issue, but that was a challenge for you to set a team up that could deliver the complexity, yes.

Q I should probably just say here also, I'm very conscious, and you've spelled it out very fully in your witness statement, that although you were here wearing the hat of the architect, there were a large number of people involved in the UK, and indeed at times elsewhere, working under the general heading of architectural work. Is that correct?

A That is correct, yes, certainly, more than 50 people based in the UK, working on this project.

Q I'm just going to use that answer as an example of the point his Lordship made earlier. When you answered that question to me, your voice dropped a little at the end.

A I'm sorry.

Q I know it's difficult, but if you could assist us, that would be very much appreciated. One of the things that I hope you may be able to do for us, Ms White, is to explain and illustrate some of the things – some of which have acronyms, as you're aware – that we're

likely to come across in discussion with other witnesses. We're very grateful to you for agreeing to, as it were, open this session, because we have an architect on our team and she tells me that architects know everything about everything. So you have very fairly set out in your statement what is within your expertise and what is not, although you've tried to help us on all topics. Is that right?

A Yes, that's correct.

Q Can I then ask you about a number of acronyms to start with? Let's start with ADB sheets. Now, can you just help me understand, what is an ADB sheet?

A Right, so ADB is an acronym for Activity Database. Activity Database used to be a database that was managed by the old NHS Estates Department. So the government used to own and manage that data themselves, so, historically, it's known to be a database where briefing material is contained to brief each department in a hospital and, in terms of ADB, as we talk about it in terms of a Room Datasheet, an ADB code is applied to each room type in a hospital and that contains a brief and that brief is then your initial brief for that particular room.

Q We're going to come back to some ADB sheets later, as you've probably anticipated. The impression the narrative gives is almost of, I don't know, a box of Lego bricks and you decide you need six blue ones and four green ones and possibly a couple of reds, because you know what size they are and how they fit. I take it that's an oversimplified mental picture.

THE CHAIR: I expect it is.

A Yes. So the way it usually happens is now, say at Schedule of Accommodation, SOA – another abbreviation – so within the Hospital Building Notes, HBNs, you get given guidance for designing each hospital department and within there there's a Schedule of Accommodation that refers you to an ADB code in general. So, as I said, that kind of gives you the starting point and it's the brief to start with but, when you continue to review that with your client team and your design team, that then evolves.

MR CONNAL: Yes, I think that's what I was probably trying to get at with my childish analogy, Ms White. Am I right in understanding then that the ADB sheets do not necessarily give all the information for all the rooms and all the

specific details that you may need to meet what is required for----

A Yes, that's correct, because there isn't sometimes an ADB briefing code or a sheet for certain types of rooms, because they're quite bespoke to that particular department or that particular hospital, so it can't cover everything, no.

Q Somebody, presumably, then has to-- well, I give you the word "design" that room and its parameters to meet what is required in the particular hospital. Is that correct?

A Yes, normally with the support from the client team to understand what activity they are doing in that room and what they require to deliver that activity in the room.

Q Well, let me move on to another----

THE CHAIR: Before you do that, I seem to be picking up a distinction. You made the point, which I understand, that the ADB sheets, which is our digital database, will hold details in respect of a number of room types. However, in a particular hospital, a space within that hospital may not fit into one of these room types. Now, that's one situation and presumably, therefore, I don't know,

does one start from scratch or does one start from the nearest----

A Yes. Yes, you've----

THE CHAIR: The nearest?

A Yes, you've guessed it there. You would normally go with the nearest type to start with and then create a variation.

THE CHAIR: Well, there's another possibility and that is, by their very nature, that a room type may not hold all the information that the person who requires to construct that room requires. Is that also it?

A Yes, that can be correct, yes.

THE CHAIR: Can be correct or is inevitably correct?

A Yes. It is correct, depending on which particular room type you're using.

THE CHAIR: Right.

A You probably have seen from the evidence that I've supplied that I think, historically, some of the older databases did not contain all the information for the ventilation, for instance, or the environmental data.

THE CHAIR: But among the pieces of data for a particular room, at least in some instances, there will be environmental data, air change rates,

pressures.

A In the ADB?

THE CHAIR: A-ha.

A There should be, but there wasn't always from the activity database information because it may not have been up to date.

THE CHAIR: Right.

A I'm talking from a briefing perspective here, not from what we actually did.

THE CHAIR: When we talk about sheets, if it was to be represented in our copy, it might be many, many pages?

A Yes, there's four main aspects to an ADB sheet. The first page is the briefing sheet, what they call the "activity briefing", which is a description of the clinical activity generally in that room, and you might also have some references to adjacencies required between two different rooms or a department. Then the second page, from memory, is the-- I think it's the "environmental briefing" page. I can't remember which way around it is, whether it's that one or the "room briefing data".

So the environmental-- what we call the mechanical engineering data contains spaces for mechanical ventilation, lighting levels, and such and such, and then

there's a third aspect which covers generalisation of finishes, such as ceiling finishes, floor finishes, wall finishes, sometimes door types, and these link back into other healthcare guidance notes, health, technical memorandum. Then the final aspect is what we call a "component sheet", equipment components, and that contains the equipment that is required in that room.

THE CHAIR: Thank you. My apologies, Mr Connal.

MR CONNAL: Well, let me ask you about a slightly different acronym, which is C&B, which we know to be Currie and Brown, often just referred to as C&B in the papers. Now, you touch upon Currie & Brown at various places, so I wonder if we could have your witness statement on screen, please?

I'm looking for page 149. Let me just get my reference here. Now, I have a note here that, when you're going through a number of the participants in the process-- That's 149. Yes. Near the foot of that page on that version, and, apologies in advance, my page numbering differs from what's on the screen, so if I make a mistake, it's my fault entirely. You see there in the second last paragraph on that page, you

refer to "…other technical advisors," which you understand were "led by and included Currie & Brown, supported the NHS Board with the review and approval of environmental data." That's what you've recorded there.

If we could go to 192, it just says it's a brief reference on 192, in fact it's probably actually on 191. Yes, here we are at the very foot, "The NHS team had their own technical advisor team," and then going onto 192, "providing support that Currie & Brown were the lead consultants."

Now, if we then went briefly to 206, where we have something similar, we should have, in the middle of the page, "…other technical advisors which IB understands were led by and including Currie & Brown supported the NHS Board with the review and approval of the environmental data."

Then perhaps if we go to 225-- No, no, where have I got that? If we were to go to 226, please. I'm just trying to find the reference to Mr Hall.

A Yes----

Q Ah, here we are. In the middle of the page there, there's a reference there to Mr Hall of Currie & Brown reviewing the M&E technical detail design

on behalf of the Board. Now, I haven't necessarily picked up every single reference to Currie & Brown in your statement, but they're all broadly of that nature. That's the reference that you give them. They're the technical advisors. They're reviewing the environmental and presumably therefore M&E-type data.

The information the Inquiry has is that once the contract was signed with Multiplex, the role that Currie & Brown had as lead consultant with a team of sub-consultants changed and the sub-consultants were very shortly, in early 2010, as it were, stood down. We have a very clear statement of the documents that dealt with that in a statement from a Mr Ross of Currie & Brown. From that point on, according to the information from the Currie & Brown end, all they were doing was some bits of costs consultancy, which I'll leave out of account at the moment, because we're not concerned with that, and some assisting in delegated project management duties when requested. So what they weren't doing was anything technical.

Now, were you not aware of that?

A No. I mean, from our perspective, the way we were dealing

with Currie & Brown-- So certainly up to full business case, they were front and present and we knew them as, you know, the lead of the client advisory team, which also included Wallace Whittle from an M&E perspective. We were aware that the previous incumbent team of architects were involved from that stage onwards so we didn't have any dealings, post-bid stage, with the other architects, but there were continuous meetings between the M&E teams, Wallace Whittle, with the multiplex team led by ZBP.

In terms of Currie & Brown, they were involved with-- From my perspective, a lot of the meetings that we attended there was a representative from Currie & Brown. So, from memory, I can think I've referenced the fully loaded 1:50 user group meetings and Currie & Brown assisted the client with a change control register, so they were still involved with that. So if that's like project management-- maybe it was more the facing of what we were seeing rather than what the client was asking them to do. I don't know the details of their appointment, but certainly David Hall reviewed a lot of the documentation that was submitted and he signs things on

behalf of the NHS.

Q I think what I'm trying to get at is primarily, I suppose, matters that relate to let's call it the ventilation, the M&E stuff, because Currie & Brown did have sub-consultants, who were Wallace Whittle, among their team of sub-consultants, including the architects that you mentioned, but the information we have is that they were all stood down shortly after the contract was signed and Mr Moir took on the project manager role and Capita appeared as NEC supervisors, but Currie & Brown didn't do anything technical, because they didn't have a technical team at that point. Now, is that not-- that doesn't accord with your understanding?

A I don't believe so. I mean, I've shown you meetings that they're in attendance with, and I think you've seen, like I said, that they've kind of assisted the NHS with reviewing drawings. The role that Peter Moir took was the NEC's project manager supervisor role, So Peter Moir took that role on and that wasn't--

Currie & Brown were employed to be the contract administrator, but my understanding was they were still there supporting the NHS team with what they needed to be supported with. I think

they're probably better placed to explain to you what that was, but, from my perspective, I saw them in meetings, and I received documents that they had signed off on behalf of the NHS, so I don't know beyond that, but I know they were in meetings with us.

Q The reason that I'm more interested in the communications around this, if I can make it clear, than I am in what contract documents might or might not tell me, because of course we just take these documents and look at them, but I'm interested in this phrase, "the technical advisors" or "the lead technical advisors", because if somebody thinks there are technical advisors there then consequences may flow from that and you were still thinking of them as technical advisors were you?

A Yeah, they were certainly supporting the NHS team. The NHS team, you know, did not include M&E engineers, so they were reliant upon some technical support, yes.

Q That's really the question.

A Yes.

Q Because in your statement, in particular in a couple of the passages that I referred to you, you talked about Mr Hall of Currie & Brown reviewing and

approving basically M&E material. Now, Mr Hall, at least in his witness statement, and he will be giving evidence later, will say, "Well, I'm not an M&E engineer, and I wasn't reviewing that, partly because it's not my qualification and partly because that wasn't our job anymore."

Now, is that all news to you?

A Yes, because I can see his signature on drawings. So I know they were involved. You know, he's not a mechanic yet. I don't know the details of what their appointments are. I think you would have to-- Well, I say you've probably got the information, but certainly from our perspective, we saw them in the meetings that we were involved with.

I think, as I've said in my witness statement, we weren't in attendance with many of the specific M&E specialist workshops, so I couldn't tell you whether he was-- or who was in those meetings, but, you know, I've seen drawings that they've reviewed and he was in attendance in meetings that I attended.

THE CHAIR: Ms White, just to help me – and I have to apologise for my ignorance – when you're using the expression "technical advisor" in your statement, for example, am I right in thinking that it's small t, small a? In other

words, someone who's advising about technical matters? In the NEC3 design and build, "technical advisor" has no special meaning.

A Yes.

THE CHAIR: Thank you. Sorry again, Mr Connal.

MR CONNAL: I suppose that the question is this: Currie & Brown's position, as I understand it – and we'll hear from them in due course – is their position changed quite radically. I'm just calling it after the contract was signed, end of 2009 into 2010 – it's a long time ago. They say, "Right, we had a whole team of experts, we stood them all down, we're only doing very restricted work from then on."

I'm just wondering, was that communicated to you as one of the key players and by you, I mean you and your team, that that change had happened, if it happened?

A I mean, no. I think what I explained was we understood that the parts of the team weren't-- were stood down, which were, from memory, the architects and the clinical strategist healthcare planning team. But we also knew that Wallace Whittle was still involved with reviewing the

documentation, certainly quite heavily up to full business case submissions. So, the appendix case submissions, and, as I said, David Hall and a couple of others from Currie & Brown, they may have had a smaller team, but they were still in the meetings.

So, as far as I was concerned, they were still acting on behalf of the client, and they responded on behalf of the client.

Q Let me move on then to another-- we'll bounce back at this topic just in a minute or two, but in your narrative, you give us a lot of information about things called UGMs, or user group meetings, and you set out a lot of detail. I'm not going to take you through all of that orally today, otherwise we'd be here till Christmas.

But the user group meetings, different people turned up at different meetings depending on which area was being discussed as I understand it. How did those attending know what the agenda was? What were they going to be there to discuss?

A So we set out the process in collaboration with the NHS team. So it was based upon, as I explained earlier, what you could do in the timeline, so the

first stage, Stage 2 of the project design for us ran from end of 2009 till the end of 2010, and we needed to deliver what the full business case requirements were, which is focus a lot on cost certainty, so we set out what we could conceivably design in that time period with the-- and agreed with the client team that, you know, we couldn't do everything in that 12 months.

But we focused on the 1:200, which is the department design layouts, and set a structure based upon three rounds of user group meetings with the clinical users, and we could achieve that, you know, in that time period and then we also then developed the further two rounds of meetings to review what we call the 1:50 room-type layouts, which is a detailed layout of the room showing the equipment that came from the ADB sheet----

Q I'm interrupting you but I'm going to ask you to take us to one of these later on----

A Okay.

Q -- just so we can all understand.

A Yes. So, in terms of the user group meetings themselves, are you asking me who attended or how we----

Q I suppose what I'm trying to do is to see if I can summarise the topics.

A Okay, so we----

Q Adjacency was one thing----

A Yes.

Q Which room should be near which room.

A Yeah, so at 1:200 level, you're trying to ensure that the department layout, which has rooms next to rooms and corridors, can deliver-- that the users can deliver their clinical service within that room configuration, and that you've got the correct adjacencies from, you know, particular rooms and the flows of how they would be used, the actual department, and that also means, you know, distances from circulation lift cores etc.

So, in our experience, we know we can normally achieve an agreement on those layouts within three meetings, so that was how we proposed to have three rounds of meetings. And yeah, we set up the structure, how to coordinate the design around that as well. So yeah, I mean, the agendas were generically-- we agreed a generic template of an agenda for user group meeting 1 with the project manager leads for both the children's and the adults' hospital.

So that generic agenda was copied to every department. So, for instance, on user group meeting 1, we included a holistic overview of the design of the building because before you get into the detail of the actual department design, we tried to explain the whole building, where their department sat within the whole building, how you got to that department and then we went into the detail.

So every user group had that initial overview presented by our architects about the design of the building as a whole and then we went into the detail of the actual department, and that was the same for each user group. So the structure followed the same setup.

THE CHAIR: Right, just so that I'm following, at the moment you're describing what was happening in the 12 months after the signing of the contract----

A Yes.

THE CHAIR: -- end of 2009 up to about the end of 2010 – and tell me if I'm wrong about this. In contract terms, the process that you've just described is described as "design development".

A Yes.

THE CHAIR: Right?

A Yes.

THE CHAIR: That design development program involves the contractor, through the contractor's advisor, who is Nightingale, coming forward with contractor's proposals. If I get any of this wrong, just tell me.

A Yeah, yeah.

THE CHAIR: Right. Now, you're bringing these contractor's proposals as expressed, to begin with, in 1:200 scale drawings. We haven't heard about Room Datasheets yet, so I'm assuming it's just drawings?

A To the user groups, it was just drawings, yes.

THE CHAIR: Just drawings?

A Yeah.

THE CHAIR: And the user groups are being asked to – again tell me if I'm wrong – review and approve reviewable design data, or is that wrong?

A Yeah, so the reviewable design data took place after 2010----

THE CHAIR: Right, so it----

A So, at this time, it was us developing the design to go into the next contract, so it wasn't reviewable design data, so the final contract for-- it was two stages, the contract sign-- the contract signature, so----

THE CHAIR: Right. I think Mr

Connal is just taking us to begin with for that first roughly 12-month period.

A Yes.

THE CHAIR: So what was the, as it were, competence of the user groups? You've mentioned that they were being asked to approve adjacency. Were they being asked to approve anything else?

A In the user group?

THE CHAIR: Yes.

A 1:200, no, but I was aware-- well, we know when the exemplar design was developed previously to our involvement, that there were users consulted to create the brief.

So they weren't unfamiliar with the building because they had been consulted. I don't know the level of detail, I wasn't involved, but they were involved with the development of the Schedule of Accommodation and the clinical output specifications to create the brief, initially for the client-sided team to develop the exemplar design, and then we developed our design during the bid stage as contract proposals to that brief.

Some of them would have been involved developing that brief. So it wasn't unfamiliar, but some of them probably would not have been-- it would be the first time they've seen the design.

THE CHAIR: Yes, but I'm keen to grasp what it was that the user group members in that first period of 12 months were entitled to approve or reject.

A So, we tried to stipulate a set of rules, so the NHS team had a user group protocol, so they explained what they could or couldn't do, so in our minds, because it was the first time we had presented our design, even though we had dialogue with the project team during bid stage, it was the first time they had seen our designs, so we were quite openly allowing them to move rooms around, to, you know, ensure that the layout of the department achieved what they were after, and the design that we presented was the design that we had some dialogue with.

So, some departments, at the beginning, it was quite clear that they were comfortable with the general layout and there wasn't a lot of change required. In other departments, it was quite clear that we hadn't quite got the design the way that they were happy with. So we had to then come back with revised proposals and would present updated drawings in the second meeting to hopefully address the issues that they raised. My understanding was, they were

quite open-- I wasn't actually present. I set the structure up, but it was open to allow them to have the dialogue and to feel that they could own those departments.

THE CHAIR: One more question before I apologise to Mr Connal and hand you back to him. In that first 12-month period, in perhaps the second or third meetings, were the user groups being shown the 1:50 scale drawings?

A No, that came later.

THE CHAIR: That came later.

A There were a couple of the meetings, I think, the generic wards in the adult hospital, for instance, where we did table some room layouts in the third meeting, because it was quite well advanced and they wanted to see what the room would look like. So we pulled some of those designs forward and then the rest of them would have seen those designs later on.

THE CHAIR: Thank you. Sorry, Mr Connal.

MR CONNAL: The initial focus was on basically designing the layouts of, let me call it the wards for the moment, because I know there are other bits than wards but just to keep it simple. Then as this matter progressed, possibly started

early, but continued later, am I right in understanding that the user group meetings then did come on to look at things like room layouts and also room equipment?

A That's correct, yes.

Q In the sense of, "Do we need this medical gas here?" or does there have to be a particular machine in this room and so on. Is that the kind of thing that was being discussed?

A Yes, yes, precisely that. So, once we'd agreed the layout of the department, then we were able to start to put the equipment into the room for them to see whether that room shape worked, or whether they had the right bits of kit in that room, and then they were asked to comment on the layout of the room.

Q Right. Now, that's what they did do. I think I'm picking up from your witness statement in several places that the one thing the user group meetings did not do was discuss things like M&E and ventilation. Is that correct?

A Yes, I believe that's correct. As I said, I wasn't in the meetings, but I don't believe they were presented with that information in the user group meetings that we attended, anyway.

Q Well, that probably leads me

on to the next logical question, which is this, that if you've got a layout and you're talking about equipment and where things should go in the room, and so on and so forth, presumably, the issue of ventilation requirements – if there were particular ventilation requirements – has to be discussed somewhere. You've said that these are in technical meetings, is that right, which you didn't attend.

A No, so my understanding was that the environmental data part of the Room Datasheet and the technical design, in terms of the mechanical, electrical design was discussed separately in workshops. There are some reasons why you would do that because the clinical teams, a lot of them aren't used to seeing drawings and are unfamiliar with how to read a drawing, so we can take them through the drawing.

There are some more technical-based departments where the people that attend have more of an understanding of the technical part. Some would have benefited from that discussion, but the majority, I don't believe, would have understood some of the technical part. So that's why I think the decision was made to not necessarily show that level of detail in those particular forums.

Q Well, we've been trying to find anything that would help us on what happened with these meetings. First of all, perhaps just to get it out of the way – I can put them up on screen if we need them – there was something called the Technical Design Group that we found some minutes for, which was a group that you attended, but we've found nothing there that dealt with M&E at all. It either said, "No comment," or just blank. Would that be your recollection?

A Yes, so those meetings that you have the minutes for, so what happened in----

Q Well, perhaps I should just put one up, so his Lordship can see what we're talking about. Can I ask for bundle 40, page 354, please? Thank you. This is up just because it's the first one I've come to, rather than anything else----

A That's fine.

Q -- but you see a number of attendees, yourself, Heather Griffin. Karen Connolly, I think, had a particular focus on what's been described as Soft FM; Heather Griffin, who was described at least as a deputy project manager; and then there's a distribution list. So you were just about to tell us broadly what happened in these meetings, perhaps

using that as an illustration.

A Yes, so these meetings sat within a suite of meetings that the NHS project team had structured as a proposal to Multiplex to respond to. So we had to have attendees and develop our approach in response to this.

So, at the initial part of 2010, it was structured so there was a Technical Design Group meeting, a monthly meeting, and another one focused more on the medical planning side of it, which we ran, I think, for about the first four months separately. It became apparent that many of the same attendees were in the same meetings, and there were a lot of crossover subjects, so they then got amalgamated into one meeting. The main focus of these meetings were more of a reporting back to. They weren't where the detail was discussed.

For instance, something that came out of one of the initial Technical Design Group meetings was that we needed some specialist radiation protection advisory support from the NHS team, and then we had a specialist workshop with that team, and I think we had three meetings with them and they were called technical design workshops, in order to focus on the actual technical design. So

there won't be huge content about the technical design. In these minutes, it was an overview.

Q Well, I had a look at the ones that we could find, about 50 pages' worth, and there is a topic, M&E, and it's either left blank or it says, "Nothing to add," or something like that. There's no substantive discussion on that topic. Would that accord with your recollection?

A In fairness to our M&E colleagues, I think at this stage of the design they needed the department 1:200 designs, in order to develop their designs. So, at this stage, they would have been looking at, let's just call it, the infrastructure of the building. We had designed, in the bid stage with them, the service rises, the overview, the location of the plant rooms and the big bits. So they would have been-- continually to develop that part of it, but they required the design from ourselves, in terms of the layout of the departments in order to continue to progress. So I think that's probably why there wasn't a lot of detail they were able to report at that stage.

Q Can I then come back to the question that arises from the answer you helpfully gave us a little earlier when we were discussing the user group

meetings? That the decision had been taken not to discuss ventilation details and that kind of technical material in the user group meetings because of the "mixed audience," if I may just use as a paraphrase for the description you've given us, that you had some people who wouldn't be familiar with these topics, others might have been, but the decision was taken to do it elsewhere. So, I suppose, what I'm stretching for here is these technical meetings or technical workshops-- I can understand from one side of the fence you have ZBP who are the ventilation engineers and designers. What I'm struggling for, at the moment, and I'm looking for any help you can give me is, apart from Currie & Brown, and Mr Hall – there was only probably a couple of them left by then – who would be inputting, so far as you're aware, to these technical meetings?

A I can't tell you who because I wasn't in the meetings, but I was aware that Wallace Whittle was still involved from the client side. Certainly, the design that was submitted for full business case, which was the stage two full business case, Appendix K submission, I could see reports that they had reviewed the submission that was prepared by ZBP,

with support from the M&E subcontractor, Mercury, and that there were reports with comments.

Within those reports, I could see reference to these mystery workshops. I could see reference to them but I could not find any records of, other than what I saw in there. I have to admit, it's a bit of a mystery from my perspective too.

Q We haven't got any either.

A Sorry, were they able-- not to share any information?

Q We haven't got any material about this so far. I suppose the difficulty that we're getting into, as you probably gathered, is that as the designs proceeded and as you're getting to saying, "Well, we want the layout of the room to look like this, and we want the equipment to look like that," at the same time, someone somewhere is supposed to be discussing the detail of the ventilation requirements for particular rooms, or particular sets of rooms, or particular wards. We're trying to find who, other than ZBP and possibly Currie & Brown as attendees, was inputting into that discussion. You weren't at these meetings, I appreciate that. I just wondered whether you knew.

A We weren't at those meetings.

Obviously, within our own internal design team meetings, we certainly had a lot of discussions about not specifically-- you're focused on ventilation, but the whole M&E design, we obviously had lots of meetings internally and those would have been recorded in the design team minutes, and they took place monthly. There were other coordination workshops that we have records for. I think the problem is, yes, we also didn't have visibility of any meetings. If we weren't shared the information on Aconex, we wouldn't have seen it. That's the problem too. So I couldn't locate anything. I'm sorry.

Q No, I suppose I can put it as bluntly as I can. When you get into looking at the detailed ventilation requirements, say, of a particular room in a particular ward, you've done this layout and kit in one meeting, you say there were other meetings you weren't at. When you get down to that detail, can you tell us who, wearing the Board's hat, was involved that had the skills to debate these things? Do you know?

A I'm just trying to think who. From a technical perspective, they're not M&E engineers, are they, so I'd hate to say, but I know that Peter Moir was more

technical minded, but I wouldn't put him down as somebody that could do that. That's why I think that was my understanding, that they did rely upon some support at the various stages, from Currie & Brown and Wallace Whittle, up to the point where there was a substantial, you know, agreement on aspects of that design. So, no, I don't think I know that.

Q No, no. I wanted to ask you about it particularly because, in his witness statement, Mr Hall says that his position is, "M&E design was entirely the responsibility of ZBP and nobody else." He says that that's his take on it.

A I mean, that is factually correct in terms of the responsibility for the submission but, you know, they would have been presenting technical information to the client for review as we did. So, you know, ZBP would be expecting some input from the client team to allow them to develop their design, yes, so contractually I don't believe what he's saying is incorrect but, you know, they had to supply information to ZBP in order to allow them to develop their design.

THE CHAIR: The "they" in that sentence is Currie & Brown?

A ZBP are responsible for----

MR CONNAL: ZBP had to provide information on it.

A Yes.

THE CHAIR: Ah, right.

A Yes.

THE CHAIR: All right, okay, so it's ZBP reporting back to Brookfield?

A Yes, yes.

THE CHAIR: Right, thank you.

A Yes.

MR CONNAL: I mean, we know of course, as between the Board, it's the Board on one side and it's Brookfield on another and everybody else is underneath that, but we're not getting into that distinction for present purposes, because we're not really here to discuss who did what under the contract.

Well, let me ask you another question then. Another player in this saga, Frances Wrath.

A Yes.

Q Is that a name you remember? You certainly mentioned her a few times in your witness statement.

A Yes.

Q Do you remember what role she had?

A So yes, so Frances was-- She was more technically minded from their

team but, again, not an M&E engineer. She worked with us at the beginning to help develop the Room Datasheets and she was the initial reviewer to ensure that we got the right room types, ADB briefing to the right rooms in the building, and she was more heavily involved, I think, probably after the user groups, per se. She wasn't in attendance in the user groups but she had more of an understanding of the equipment requirements in the rooms, I would say. When I say "technical", I don't mean mechanical electrical ventilation, although she would have had some understanding of it, but I think in terms of how they would technically use the rooms and the specialist equipment associated with those rooms.

Q I don't necessarily need to get you to go to it but you've described her as the "NHS lead in the RDS process".

A Yeah, so she was our point of call for, you know, developing the Room Datasheets. She certainly took the public face towards us and I think she definitely reviewed most of their documentation, yeah.

Q I think you described her as "more technically minded, but not an M&E specialist"?

A Yeah. No.

Q "More on focusing on the equipment." So if it's recorded that Frances Wrath approved something, what does that actually mean? What is she, on your understanding, doing if she marks something as approved?

A I mean, you know, she was given a role within the team to review some documents, so she's reviewing on behalf of the NHS team that set of documents, so she's trying to make sure that it matches the brief requirements, basically. So, for that particular set of documents that she was reviewing, she's reviewing on behalf of the whole group, but she wouldn't have been on her own just doing that. She would have consulted. Where she required some support she would have consulted internally other members of her team. But you know, just because somebody's name's on the site, signature, and it was her role to review that, it doesn't necessarily mean she's 100 per cent responsible. You know, that was the role she took on for the team.

Q If you saw a document and it had a signature, "Approved, Frances Wrath," she's just acting as a sort of lead player, is she, for others?

A Yeah, I mean she ended up having to sign a lot of documents off so it's unfair to say that she was responsible for checking everything, but she was, you know, being the representative at a moment in time and, as you know, the Room Datasheets, for instance, are voluminous and, if she puts her name on it-- I'm sure she probably didn't look at every single page but she certainly would have looked at what they had reviewed previously to make sure that the comments that were made were captured, and, you know, she's one representative of a team.

Q Yes, I think that that's an interesting answer, thank you for that, because there are two ways of looking at this, possibly. One is that this is a process under which Frances Wrath, wearing her GGC hat, approves and thus signs off, ticks the box, whatever it is, in some formal sense. Another one is that she signs to say that a process has taken place, that comments have been noted, and she's confirming that that's all been done. Is there a difference between these two?

A Well, she wasn't the-- Peter Moir was acting as the NEC project manager, so, you know, she-- I think it's

probably a fairer definition of what her signature actually meant than saying, you know, she signed it off, and it's her name. I mean, it was a stamp from the NHS, so she's representing the NHS project team and confirming that she's reviewed and checked the information within those documents.

Q Is it to confirm that a process has now been completed or is it to confirm that everything in the documents is correct or is-- do you know?

A It's probably a bit of both, but yeah. You know, she's stamping it and confirming that she believes that the documents are correct and, thereafter, you know, Multiplex and ourselves would feel that we've completed and have a set of documents that represented the brief and then we would continue with those documents as agreed.

Q Does the same apply if we see a signature from David Hall?

A Yes, because it was stamped.

He was looking at it on behalf of the NHS, so he would have been reviewing on behalf of the NHS a set of documents, and I've seen a lot of his stamps on the reflected ceiling plans, I believe, but, you know, not-- it's specific drawings I've seen his signatures on but-- Yeah, so I

think, to me, it's the same approach. He's representing the NHS client.

Q The other phrase that appears and I think it only appears once in your witness statement at page – let me just get this right – 145, I think. Yes, in the middle of that page, the phrase "Stamped as a record" appears. Now, that's your words, not mine. Does that have a different implication?

A Yeah, because sometimes it's stamped as a record, as saying you've received a drawing. I think this was 1:50. At this stage, the drawings were stamped with still some comments, so they were stamped as a record and the record was did it have a status A, B, C or D, and then you had to resubmit. It wasn't the final approval of those documents, it was stamped as a record of-- You know, it represented what was discussed in those user group meetings and they were satisfied that it was a record of what was agreed.

Q Well, let me ask you another question, a slightly different topic. Clinical output specifications. I can see from your statement the process, different drawings at different levels, and I'm going to ask you to take us to examples of these in due course so that we can all at

least see what kind of thing people were looking at. Clinical output specifications are a different kind of document, if I can put it that way. They're not drawings, they're not ADB sheets, they're not lists; they're simply creations from a department. I'm just wondering – I'm going to show you the two that we're interested in, 2A and 4B in a minute – how does the clinical output specification, which is issued by the Board, fit into the process that you've been helping us to understand?

A So clinical output specifications are developed at the beginning. So if I described an RIBA process, would you know?

Q No.

A No? Okay. So let's just call it "the brief". So before you design a building, you're developing a brief for a building. So, often in hospitals, as was the case in this project, the client, you know, develops an initial design team to support them with developing a set of briefing documents and a level of design in order to get, you know, business case approval, that outline case, outline in this case. So the clinical output specifications are important briefing documents that the client develops with their clinical team,

probably supported-- well, certainly supported by a healthcare planner, normally, who has experience of developing these documents. The various clinical teams would, you know, explain how they work and provide information to the author of the output specification.

Sometimes if there are people with the skills in-house, they will develop those documents in-house, but the documents are kind of key to explaining, you know, how many rooms are in their design, what types of rooms they require, a general overview of what they do in that particular department.

Sometimes, as you'll have seen from some of the clinical output specifications, there is reference to something technical, sometimes it's not.

Q That, essentially, was one of the questions I was going to ask you.

A Yes, yes.

Q So these are produced, but how do they slot into the design process which is to follow?

A Yes, so they----

Q If I take that as a general question, first of all.

A Yeah. Yeah, yeah. So, in this project they were part of the brief, so they

were part of the ITPD invitation to participate in dialogue brief, so they were sent to all the bidders at the beginning to allow us to understand, you know, what we were trying to design as departments and our designers would have used that as a starting point to develop a proposed layout.

Q Well, the next question probably follows on from that.

THE CHAIR: If I can just intervene. I think it's quite clear from your answer that a clinical output specification doesn't follow some standard pattern.

A No. I've seen lots of variety of clinical output specifications, but yeah.

THE CHAIR: And that it will depend on who drafts it. If it's a clinician who's doing the first draft, it will depend on what that clinician thinks is important about her department.

A Yes.

THE CHAIR: And that may or may not have additional material added by a healthcare planner, if a healthcare planner is involved.

A Yes, and sometimes in the same way for technical information, it may contain some technical information if they consulted the more technical users.

Sometimes you can see technical

detail in those output specifications and sometimes they're very high-level.

THE CHAIR: So would it be unfair to use the word "random"?

A Not my documents. You're talking about these particular documents?

THE CHAIR: Yes. It sounds to be rather a matter of chance----

A Sometimes, but----

THE CHAIR: -- as to how much information the contractor or would-be contractor, the bidder, is being provided.

A Yeah, I mean, I guess by the nature of the definition of "clinical", in essence, they're supposed to describe the clinical part, really, but obviously, some departments are really technical, and it would be better if they had more technical information contained in them. Yeah.

THE CHAIR: Thank you.

MR CONNAL: That then feeds into the design. Am I right in thinking that then the designers have to work out what technical material they need to put into their design, even if the clinical output specification doesn't give them a great long list, "We want A to Z"? Is that right?

A Yes, but knowing, both with your experience as healthcare designers and the additional healthcare technical

standards, yes, so there was an overarching Employer's Requirements document, whatever-- three volumes or something like that, that covered other aspects in terms of the brief, so the things work together.

So more general technical output requirements were covered in the Employer's Requirements volumes. There was one that was generalized. There was one that was specific on M&E.

Q That includes specifying the various guidance documents, some of which were to be obligatory and some of which were to be taken into account?

A Yes, that's correct.

Q Including the one this Inquiry has been endlessly hearing about, which was SHTM 03-01 on ventilation?

A Yeah, yeah, that's correct. So, in fairness, the clinical output specifications are primarily focused on clinical and what they specifically want in their departments, because, if you followed the HBN guidance for a department, it won't necessarily give you what the right approach is in terms of what that specific hospital requirements are because they're very general.

Q Can we just look at two of these quickly? Bundle 16, page 1599.

Now, this is the clinical output specification for what became the Schiehallion Ward, Ward 2A, and it probably falls into the box that you've just described of chatting about the activities, but not much technical detail.

You've given a general description, I think, of the type of patients that are being treated, the type of illnesses that they're suffering from, the different parts of the proposed ward.

As far as I could see, the only technical, in the sense of perhaps ventilation-related detail, appears about half a dozen pages further on where it says, "Accommodation requirements". That's page 6 at the bottom of that document, so, "Accommodation requirements."

You see at the top:

"The ward should be accessed by entry through a double-door barrier system, which allows the entire ward area the benefit of low positive pressure ventilation."

That appears to be an indication that this group of users want a pressurised ward with an airlock, if I can call it that. Is that correct?

A Yes.

Q Apart from that, they're simply

describing all the things that they're proposing to do within the area. So that's the kind of material that the designer has to take away and work on. Is that correct?

A Yes, that's correct.

Q And then if we look at a slightly differently worded one, which is 1595 in the same bundle. This is the clinical output specification for what I'll call "original Ward 4B" before it was changed. Again, it sets out dealing:

"…with patients with a range of malignant and non-malignant hematology conditions. A high proportion of the patients receive chemotherapy and are immunocompromised…"

And then there's actually a paragraph on ventilation at the foot of that page, unlike what we saw in the previous one.

So, in this case, the designer is being given a slightly different style of brief. Is that right?

A Yes, there was definitely a clearer brief on the specific requirement that they were after in this particular adult ward.

Q But the designer is being told that a high proportion of the patients are immunocompromised and that the ward

should be positive pressured to the rest of the hospital.

A Yes, that's correct.

Q And would I be right in thinking that in order to achieve that in a practical sense, you would need some form of – I'm calling it an "airlock", double door system, if you're going to pressurise the ward?

A You're asking an architect the question.

Q If you don't know, please tell me.

A I would suggest it possibly is, but it depends on the level of pressurisation difference required, but I-- yeah, because you always have a door at the front and there is some control, but yes, the control is better if you have a lobby.

Q In both of these wards, what they're looking for is positive pressurisation because what they're keen to do is make sure that everything goes out the way and nothing comes in, if I'm going to be colloquial----

A That's correct, yes.

Q -- whereas if it was an infectious disease ward, you'd be dealing with things differently. But these are both-- they're different documents, but

they both give indications of the things that are thought to be significant to the clinicians. Is that right?

A Yes.

Q Let me see if we can move on to every architect's favourite thing, a drawing. I'm looking for your assistance here simply because it is possible that at various stages of this hearing, people will be asked to look at drawings of one type or another, and if we can establish roughly what kind of things people are looking at and what they show, then that may speed things along a little later-- the downside of doing it today, perhaps slightly more slowly.

So, if I could ask you to look at some drawings. For the benefit of the technical team, I'm not looking at anybody's signatures for the purpose of this exercise. I'm only interested in determining what it is we're looking at.

Could I ask first to have bundle 47, volume 9, page 22? We'll get into the usual problem that it depends whose eyesight is good enough to read anything depending on how far we've expanded the drawings, and we may find ourselves having to expand some of them as we go.

This is a drawing that we haven't discussed in terms of its scale, as I

understand it's a 1 in 500.

A Yeah, that's correct. It belongs to a suite of drawings, commonly known as 1:500 because of the scale of the building, but these are the whole building department adjacencies. So they're quite high level, but they show you the location of a department adjacent to another department.

We've chosen to always colour the circulation between the departments in yellow, so you can see the circulation routes between departments, and then the yellow core coloured is the core, and that-- yeah, that allows you to understand which core is vertically up and down the building.

Q Are the other colours-- I mean, I've just selected this one. It's not because it relates to some key issue. Are the other colours significant? We've got pinks and greens and so on.

A Yeah, this is a poorly reproduced scan, but yeah, the colours were colour coded by department, just for simplicity to help people understand which department was which. So there was a color for each department.

Q This one is, to be precise-- it's called "Second floor plan departmental adjacencies", and I think it bears your

initials.

A It does.

Q Now, I appreciate, that doesn't necessarily mean that you did every piece of work on every drawing that bears your initials, because you were the lead architect, but, in terms of responsibility, you put your initials to this one.

A I did, I did. So these drawings, you know, they were developed at the beginning as the bid submission. I think really there were only minor amendments, you know, during 2010 to these drawings because this was kind of the fixed envelope that we were working within. So, you know, we did move things around within the envelope but, in general, there there were not many movement of departments, you know, in 2010, but there were a few but not many. So, yeah.

Q A drawing of this kind is not the kind of drawing that any of the groups or meetings that we've discussed earlier would have been looking at?

A No, we shared the drawings with them in the first user group meeting 1, so they could see where the department was in the whole building.

So they were all issued, I think-- The relevant level that they were on, they

were all given that drawing by the NHS project manager as part of the original briefing document and then when we did the-- when our architects did the presentation for user group meeting 1, they would have seen more of the stack of all the levels, and yeah, I think that's probably the only time they would have been-- presented them in in this format, yeah.

Q Thank you. Well, if we could look at another drawing. If we could look at bundle 47, volume 3, page 3.

A Another bad scan.

Q This is going to stretch my eyesight considerably. This is a second floorplan of the Schiehallion Ward and day-case unit and an anesthetic service office and various other things. It does contain some colourings, which haven't come up very well on this. What does the pink mean? That's the Schiehallion Ward?

A Yeah, so, in a similar manner, so we-- this is basically the 1:200 department plans, and in general these coloured versions were used in the user groups to make it clearer to the users by using the colour to demonstrate this particular area had a number of departments that were adjacent. So, you

know, we'd choose again different colours to show the boundary of a different department to make it easier for everyone to read it.

So yeah, this was the one that contained the Schiehallion Ward, and it's pink, yes.

Q So what was this designed to let the viewers understand?

A This suite of 1:200 department adjacency plans were the ones that went to the user group meetings, and, you know, the architect, when they were talking about the Schiehallion Ward, saying to the users, "The pink area is the Schiehallion Ward." That pink area aligned with the area on the previous-- Well, the example you chose wasn't this floor, but the 1:500 boundary is represented by the colour of the pink for the Schiehallion, and this was the drawing that went through the three rounds of user group meetings, and it was marked up during those meetings as record copies. So this happens to be the post-Appendix K-- I think it's the final version that----

Q Can we just expand the section at bottom right, please?

A If you----

THE CHAIR: Mr Connal, it's being

drawn to my attention this might be an appropriate moment for coffee. Sorry to intervene, but I'm getting a steer on this. We'll sit again at ten to twelve, Ms White, and I sincerely hope you get a chance for a cup of coffee.

THE WITNESS: Thank you.

(Short break)

THE CHAIR: Now, Mr Connal.

MR CONNAL: I'm obliged, my Lord. (To the witness) Can we have your witness statement back for a moment, please, before we return to the drawing, and can we go to page 81? I wanted to put this up just because we're discussing the Schiehallion Ward as a matter of convenience and because we discussed the Schiehallion Ward clinical output specification at least briefly earlier today.

Now, for those who don't remember the whole content of your witness statement, what you've done is, from time to time, you've sought to illustrate it by taking snips or pieces out of other material and putting it in and, here, what you've done is you've put in what I call, without using it pejoratively at all, a sketch of Ward 2A. Now, the reason I put this up is because it would appear that

there is an airlock at the top of the page, at the entrance. Is that correct?

A Yes.

Q Which, as you remember, was one of the things that the users had mentioned and, arguably, would be required if you were going to maintain positive pressure between the ward and the remainder of the hospital.

Can we go back to the previous drawing? That was bundle 47, volume C, page 3, but take off the right-hand side, please. That's fine. Now, as far as I could see, and maybe my analysis is faulty, this drawing doesn't show an airlock, and certainly not an airlock designed like the one on your sketch. I just wondered whether you could help us as to why we've moved from a clinical output specification asking for one to a sketch showing one, and yet here we have a drawing used for the purposes we've discussed, which didn't appear to have one.

A I can't answer that question without seeing if this was the final version of what was built, because sometimes the sketches were put back into the CAD model. When I say "CAD", it's the computer model of the design, and they weren't always interpreted 100 per cent

correctly, so I think I would need to see the final version to confirm what this says or not, that that door disappeared. So, yeah, I would need to check it.

Q In principle, you agree that the----

A Yeah, the sketch showed it, yes.

Q This sketch doesn't appear to show an airlock?

A Yeah.

Q An airlock would be part, presumably, of the ventilation designer's role in meeting the ventilation requests or specifications, however you want to call it, of the users?

A Yes. Yes, yes, yes, but also if you can see that big corridor going from what's called Hospital Street to the south where the staircase is going to the north, that area is also kind of a lobby. Not necessarily meaning for airlock, but it's also a lobby, because it's required for fire reasons. So there are many other lobbies that get created in the design of a hospital that aren't just air lobbies, they're also fire lobbies or lobbies to separate parts of a department from another part of a department.

Q Part of my reason for asking you this, and I want to be open about it, is

that the suggestion that the ward be pressurised to the outside world with an airlock and thus this positive pressure be maintained seems to have, on one view, slipped away in the design development and I wonder if we could, and again, without looking at the right-hand side of the page, go on to page 4, which is another 1:200 drawing.

Now, this drawing does have a key which deals with ceiling finishes, which I won't look at. As you probably gather, there are reasons why we're not looking at the whole of the right-hand side of the page in this drawing. There are different ceiling finishes which are applied by the architects, presumably in consultation with the ventilation designers? Is that right? Whose job is it?

A No, no, no. The architect-- we produced the ceiling drawings. This is ceiling finishes, so we would be taking the brief for the ceiling finishes from-- Remember the original ADB sheet that we talked about earlier, there's a page that refers you to HDM 60 – I'm doing quite well here if I remember the number – which is the HDM or SHTM for ceilings, and that points you to a ceiling type and then these drawings are colour coded to a ceiling type.

Q This is why I wanted to ask you about it, because my understanding of the key, which we're not looking at directly at the moment, is that pink on the plan is to the ceiling type, which is designed to be a plasterboard ceiling, thus one with no gaps of any kind or possible gaps of any kind, which is recommended for areas where access of ingress and air has to be prevented, if I can put it that way.

A Yeah, there are levels of-- When you're talking about the ceiling and the ventilation there are steps up from a standard gridded ceiling. So you can also have-- You know, a standard ceiling, like this, can also achieve air changes up to a certain level, and then it's normally-- I think it's about what you would define as just over 10 air changes. There comes a point between 10 and 12 where the air differential will just, you know, pop the ceiling tile, and then you can also use a clip to clip a ceiling tile in place and, you know, there are reasons why.

The plasterboard ceiling in this instance in these rooms were because they were isolation rooms and you had to have even tighter control of the air in those bedrooms, as well as infection

control purposes. So sometimes you put a plasterboard ceiling in for M&E purposes and sometimes it's for clinical and sometimes it's for both.

Q Yes, but I suppose the general message we get from looking at this drawing, apart from the fact that it doesn't seem to have an airlock in the location that we discussed before – that's immediately at the top of the middle of the drawing, at the end of the curve, as it were, the horseshoe shape – is that some rooms have been given the plasterboard ceilings, those shown in pink, and the other rooms have been given either mineral fibre tiles or moisture resistant mineral fibre tiles for the ensuites. Is that correct?

A Yes, that's correct.

Q So some rooms seem to have been given closer attention for air issues than the others?

A Yes, but that's because an isolation room has the highest level of air requirement out of them. So, like I said, you're stepping down, aren't you? So an isolation room has to have the highest level so, generally, we put plasterboard, although-- Yeah.

Q I'm just wondering whether the drawing indicates – and maybe you kind

of can't help us with it, because it is a drawing which focuses on ceiling finishes rather than on other issues – whether it indicates that the remaining parts, the non-isolation room parts of that ward are now being treated very similarly to other rooms elsewhere?

A Well, it's telling you that they've got similar ceilings but not necessarily that they're treated the same. It depends what else-- You know, a bedroom is designed differently to an office so it might have the same ceiling, or it might have the same paint, or often, in hospital, most of the rooms are vinyl so they will have floor vinyl so they're not necessarily the same, but yeah, they could have the same ceiling.

Q I ask that because one of the issues that has arisen in the case that is being considered here is whether what happened with 2A was that the original intention of a fully pressurised ward with an airlock and all the patients being given the benefit of high air change rates was not ultimately realised, and this might be a drawing suggesting that that's on the journey to that end.

A I'm not sure this drawing will give you that answer, but it certainly shows you that there's an area that's

treated with a higher specification, which is the isolation rooms.

Q Now, what's a reflected ceiling plan? Tell me that.

A Right, so a reflected ceiling plan is a reversal plan of the ceiling, so hence the word "reflected". So what you're looking at, if you look up here, is-- if you look at your ceiling here with the grid and lights and fixtures and fittings fitted on top of that ceiling, that is what you see on a reflected ceiling plan.

Q In the context of a project like this, who is responsible for producing reflected ceiling plans among the various groups we've discussed?

A Yeah, so, as lead consultant, the architect is responsible for coordinating and making sure, you know, that things are in the right place in terms of it's in the centre of a tile, that you've set out the grid correctly, and then we would use the model or the drawing from the services engineers to reference all these things you see there: ceiling, M&E services, the lights, the grills, even that little speaker there would come from another model that we bring into ours. Our responsibility is to make sure that it doesn't clash and that it, you know, looks acceptable.

Q Yes, so no one's drawn two things to be in the same place at the same time, you know, or in----

A Yes, and you would be surprised how many things sit on top of each other.

Q Well, we're sticking to Ward 2A and, as I said, this is largely so the Inquiry can kind of understand how these things work. If we could look again with the same request not to show the right-hand side of the page to go to a reflected ceiling plan, a 1:50 reflected ceiling plan, page 5 of this bundle. This is a plan which is so big that it's in our system in one half and then another one on another document and I'm not going to ask you to look at both halves of the document, but if you would just bear with our technology for that purpose.

This is a reflected ceiling plan, a 1:50 scale of Ward 2A and, as you say, it shows you things looking up the way.

I'm just keen now to identify some of the things that we see. Let's go from left to right. So, after the curve, there's a public lift, and then we go to a single bed room, the first one there. There is a box with a sort of St Andrew's cross in it. What's that?

A That's a chilled beam.

Q That's a chilled beam?

A Yes.

Q All right, and do we know it's a chilled beam because there is a heavier black line around the outside of the box?

A Yeah, that we can't look at now, but on the right-hand side that you you're avoiding there's a key to the symbols.

Q Yes.

A So the key to the symbols for the M&E items came from the M&E design and we've referenced them in here, so you've got a key on the right telling you that the St Andrew's box is a radiant panel and then-- sorry a chilled beam, and then the other one with just one cross in it is a radiant panel.

Q Sorry, where are you indicating for the radiant panel?

A It actually has "RP" in it. It's the one with just one diagonal across the long one by the window.

Q Oh right, yes.

A So that's the radiant panel.

Q So the chilled beam is the cooling system, if you like?

A Is the smaller one. Yeah, that's the cooling system, and the radiant panel is the heating system.

Q Yes, yes. When you go into

the corridor, there are boxes with, again, a diagonal cross in. What are these?

A So those are also from the mechanical model and those are ventilation. Well, like your circular one here, they're ventilation.

THE CHAIR: Sorry, my fault Mr. Connal, I've lost where we are on the drawing.

MR CONNAL: Right, if you go directly beneath the core L public lift box, which is near the top of the page, and go straight down from that, you end up in the corridor, and the corridor has a number of boxes with a St Andrew's cross in them.

THE CHAIR: Yes.

MR CONNAL: Squares rather than oblongs on this occasion.

THE CHAIR: Right, okay.

MR CONNAL: I was just asking the witness what these were.

A Yeah, so they're mechanical ventilation air-- an air version of, you know, heating and cooling.

THE CHAIR: Sorry, my fault. Air version of heating and cooling?

A Sorry, a radiant panel in the bedroom that we were, that's a heating panel, and the chilled beam that we discussed is a way of cooling the room, and then these square boxes in the

corridors are like these ventilation circular ones that you've got here but they haven't got the circle in the middle, they would have been just a grill and it does, I think heat, and-- I'd have to look at the key to tell you, but I believe it's a heating and cooling mechanical grill.

MR CONNAL: This is perhaps going a little into a byway. My understanding is that the chilled beams that were fitted in both hospitals, although they're referred to as "chilled beams", have a facility to both heat and cool. Am I right about that?

A I think they can do both, yes.

Q Right.

A I believe so. I would double check that with the service engineer but, yeah.

Q So the square with the St Andrew's cross is a heating and cooling unit?

A Unit that's just air.

Q But is simply air----

A Yeah, it's just air.

Q -- and it doesn't use fluid?

A No. No, you might still get condensation but it is just air, yeah.

Q Right.

A So-- Yeah.

THE CHAIR: I appreciate, Mr

Connal, this is maybe not on point, but it helps me understand what----

MR CONNAL: Hopefully, it will assist in later evidence, my Lord, one document, again, looked at. Just so we don't lose track of it, on the extreme left of the part you're looking at, at the moment, there is a thing called "Hospital Street." So that's one of the main corridors that have been designed to allow, I was about to say, traffic movement.

A Yes, Hospital Street link departments together. So they're the circulation between departments and linking you to the cores where the lifts and staircases are.

Q Is it possible to tell from this drawing, when you go up Hospital Street, going from the bottom to the top, and then you turn right to go into Ward 2A, whether there is an airlock or not? It doesn't look like one, but I appreciate we're looking at the ceiling.

A Yes, you can see the double line of the wall with a fire strategy diamond shape. So there is no additional lobby line shown. So you've only got the Hospital Street acting as a lobby. You've got something above core L lobby that's a fire lobby. The Hospital Street is-- Yes.

Q Okay. Just so we perhaps get it out of the way, because you make this point several times in your statement, I'm keen to make sure that we get it correctly from you, there was perhaps a slack habit on behalf of the Inquiry of criticising people for having suspended ceilings, as if this was a criticism. I think, as I understand it, you make the point that all of these ceilings that we've been discussing, the different types, the different finishes, are all suspended ceilings. It depends on the finished type of, if you like, the part that the person sees when they look up, what their strengths and weaknesses are. Is that correct?

A Yes, because in modern hospitals, you've got all the services above the ceiling, so you always have to have a suspended ceiling. It's just a question of whether you see-- In this one, that's an exposed grid. So you have an exposed grid. When you've got plasterboard, the grid is hidden.

Q So, what this 1:50 reflected ceiling plan drawing for 2A tells us is there's no then current plan for an airlock, and the bedrooms that we can see running left to right along the top and continuing – and we needn't go along

them all – all have chilled beams in them.

A Yes, they all have chilled beams and they all have an exposed ceiling grid.

Q Exposed ceiling grid.

A Yes.

Q So they're not set up with plasterboard ceilings or anything of that kind. You can tell that from looking at this drawing.

A Yes, because you can see the grid. So if you look to the south of that SCH-041 single bed, down the corridor there's a plasterboard margin, so you can see it's plasterboard because there's no grid.

THE CHAIR: Sorry Ms White, maybe your voice was just dropping a little as you become interested in the drawing.

MR CONNAL: I think the witness is taking us from the first bedroom that we looked at, out of the door, to a place where there's a letter E, and suggesting that the section around the letter E and continuing is plasterboard because there are no grid signs there.

A Yes, that's correct. So that's how you can tell whether it's got an exposed grid or it's plasterboard. You won't see the grid in the plasterboard

because you're looking at the final finish. There's still a grid, but it's behind the plasterboard.

THE CHAIR: Right, perhaps if I can maybe just ask you to run through that again, so I've got it. I've been assuming, up to now, that when we've been talking about chilled beams – I appreciate you've not just been talking about chilled beams – that the grill – what I think is the grill of the chilled beam – will be flush with the plasterboard, or whatever else constitutes the ceiling and the rest of the chilled beam is in the roof space. Have I got that right?

A Yes, that's correct.

THE CHAIR: Now, what we're talking about at present is the possibility that a heating or cooling element could be not with a grill flush with the ceiling but entirely within the roof space. Is that what you're saying, or have I failed to pick that up?

A No, no, no, I was just talking about the actual ceiling itself and the grid that supports the ceiling, nothing to do with the chilled beam itself. The chilled beam itself is obviously fitted inside, and I think it would have some hangers fitted to the soffit concrete above in the ceiling void, and it would link up to other

ductwork that you can't see on this drawing.

THE CHAIR: Right, entirely my fault. I hadn't quite followed what we were talking about. So we're talking about the roof space and we're talking about the grid that supports the ceiling. Have I got that right? If not, correct me, Mr Connal.

MR CONNAL: Yes, but the primary reason for talking about that is to discuss the finishes which are indicated by this drawing, and this is what's been described as an exposed grid. Now, is that a finish which is designed to maintain significant levels of positive or negative pressure?

A I think you can achieve levels of positive pressure with a gridded ceiling. I couldn't tell you exactly what level that ceiling type would allow you to achieve, because that's normally to do with the size of the ventilation air handling plant more than the ceiling, but having a plasterboard ceiling would allow you to control the level of air leakage more than a gridded ceiling.

Q Thank you. Well, let's move on to page 7 with the same approach of not showing the key for the moment. What we're going to look at here, if I've

got this right, this is a 1:50 layout. Is that right?

A Yes, so this was a drawing for-- I'm going to have to guess now what this-- I believe this was for-- It's got a number of revisions on the side. It's the mockup. Sorry, what's the drawing number? I know you can't see the right. Can you just go to the bottom right? Contract, 1:50. Right, that I think was the drawing for the mock-up.

Q So, is this not the kind of document that user group meetings would have been shown?

A Yes, so when we talked about the 1:50 room types, this drawing, without the room elevations on the side, would have been used initially to discuss the layout of the furniture, and then the elevations of the walls were added later. But this particular example drawing you've chosen is the one that was developed in order to build the mock-up for the children's bedroom. So that's why it's got dimensions. It's not normal to put all these dimensions on this plan that would normally be on the bigger 1:50 plan, but this was specifically done for the mock-up.

Q And this almost looks like a pattern for building a doll's house. If you

cut it all out, you could fold them all up and put them together. Is that correct?

A Yes, so you've elevated every wall on the plan on this drawing, so I'll confuse you but, like I said, originally this drawing also existed as a plan that went to user groups, and then later the wall elevations were added. You just so happen to have chosen the one that also has a ceiling plan on it, which was not the same-- It was only done like this for the actual mock-up to assist with the construction of the mock-up. So normally you would have the ceiling on a separate drawing.

Q Can we tell from that, is this an exposed grid, as we were discussing?

A Yes.

Q And does it have a chilled beam?

A Can you scroll down to the-- Well, the cross is either a chilled beam or a radiant panel. I think it depends on the-- Yes, it looks like a chilled beam, because it hasn't got a volt box around it.

Q You may not be able to help me with this, but what kind of knowledge and ability would somebody from GGC, turning up at a meeting, need to have to understand this range of features that we've been discussing today? I mean, I

can understand somebody comes in and says, "Where's the sink?" Fine, go look at the point. But in terms of the kind of detail we've been discussing today, would somebody need a degree of knowledge of issues like ceiling types and so on?

A Yes. I think that what GGC will be more familiar with is looking at the equipment on this plan, and they would understand how they currently operate and how they currently have a room layout where the bed is or where the sink is, although, for sure, this layout was different to their existing facilities, because this is a more modern hospital HBN room layout. Yes, I mean, I think they would understand this part of it, and then you see, again, the ADB comes in here. So the little codes on the equipment on the plan, those are linked on the right-hand side to a description of what that code means.

Q So, BED-015 is a bed of a particular type.

A Yes, and those are the ADB equipment codes that come from our famous ADB sheet from the beginning, from the brief. So these are the pieces of equipment that came from the ADB briefing code, from that page 4 equipment

component.

Q Yes, right down to the type of cleaning socket and other details of that kind.

A Yes.

Q Well, let's move on to something else. RDS, Room Datasheets?

A That is correct.

Q Now, I just want, again, to look at a couple of parts of a Room Datasheet, because the impression that a layperson might have is that a Room Datasheet is, you know, a sheet of paper with some typing on it, but that's an understatement as to what an average Room Datasheet for an area contains. Is that right?

A Yes. A Room Datasheet captures, I think, like we described at the beginning, with the ADB sheet. ADB is an Activity Database, it's a starting point, and you have an ADB Room Datasheet, and datasheets that we produced came out of a different piece of software to confuse you called CodeBook, but it's a Room Datasheet as well. They look very similar. It's just two different pieces of software.

THE CHAIR: Did I pick up what you said correctly, CodeBook?

A CodeBook is the software that

we used to produce our Room Datasheets, and the reason we use that software is that it can link into the drawing; you can link the two things together, and the equipment codes that you see on the plan here, they can be pulled into-- CodeBook can then generate that Room Datasheet to match that, whereas if you left it in ADB system, it's manual, so you'd have mistakes.

THE CHAIR: Does CodeBook exactly replicate the information in the Activity Database or is it an improvement?

A It's easier to do changes. So the Activity Database-- just to say it's a database. When that part in what they call ADB Manager is agreed, it's just a database that gets pulled into our database, and then you use the Schedule of Accommodation and link it to the rooms in the building, and then the data goes into the room in the building.

THE CHAIR: I was going to ask this question. Is the task of allocating a particular room in a particular hospital to an ADB room code, the task of an architect? I mean, is it the architect who carries out that?

A Yeah, it's normally a task that a healthcare planner will assist with

because you normally match them on the Schedule of Accommodation and then we use that to give us the brief for the room.

So it's not normally the architect that will designate the room type to the right room. We may suggest, "Is this one a good example in terms of it's a square, it's a good shape", to demonstrate the example, but it's not normally the architect that would attribute that.

I'm not saying we haven't done it in the past, but on a project of this scale----

THE CHAIR: But more typically the task of a healthcare planner?

A At the beginning, yes, but the healthcare planner would need to work with the NHS team to ensure that they've understood which type is which, so they have the understanding in general terms but may not specifically to match the client's brief. Does that make sense?

THE CHAIR: I think it makes perfect sense. I'm just trying to see how that just works mechanically.

A Yes.

THE CHAIR: The picture I've got is two different skill sets sitting down together: the clinician who knows what she wants by the way of a room – for example, a room that's suitable for nursing a child with an oncological

condition – and a healthcare planner whose skill set is to do with the design of hospitals at a fairly high level, as I'm understanding it.

Now, does it need these two people, as it were, to sit down together or----?

A Yes, with healthcare planners though you get two types. You get ones that are more into the equipment detail. So on this project, George, who worked with us, was from the healthcare planning but his speciality was in equipment, so he has the technical understanding of equipment and ADB.

If you were working earlier stage, you would have probably a healthcare planner that has more expertise in strategy, not necessarily the one that has the expertise in the detail part.

So you get two different types of healthcare planners as well, but yeah, they would make a suggestion but they would need to review it with the NHS team.

THE CHAIR: Right. What I think I'm trying to understand at the moment: a clinician might have a good idea of what a particular room identified in the Schedule of Accommodation, the use of which is described in the clinical output specification, she may have a good idea

of what that room is going to be used for, but she wouldn't know which room code----

A That's correct.

THE CHAIR: -- that room would have in ADB, whereas-- and it's the additional skill, and I think you're answering my question by saying the healthcare planner is the person with the appropriate skill who says, "Well, if that is the sort of room you want, you should start with a particular code in ADB."

A Yes, yes. So they would help match the closest code. It still might not describe exactly what they plan to do in that room.

I mean, they are-- by nature, they are quite generic, but you have the ability to amend and add more information, or amend it, both in ADB Manager and in CodeBook.

THE CHAIR: That process of amendment might be at the first stage or during the case of design development?

A Yes, it could be both stages.

THE CHAIR: Thank you. Mr Connal?

MR CONNAL: My understanding with Room Datasheets is, if you dug out the Room Datasheets for Ward 2A, which is what we're about to do in a minute, you

will then find that there is about four pages of data for each room in that ward.

Would that meet your recollection?

A Yes.

Q Some of that data is on topics that we needn't trouble with.

A No, no. So, from the original ADB type of Room Datasheet, we omitted some pages because it was duplicated information.

So I think what you'll show me on the Room Datasheet example is one that maintains the clinical activity page, the mechanical environmental page, and the equipment page. That's correct, isn't it?

Q Well, if we could go in the same bundle-- we'll find the Ward 2A Room Datasheet at page 10 of the bundle, and what I'm going to ask you to do is to look at a couple of examples.

So, if we go to page 71, this is a Room Datasheet environmental for an en suite in an isolation room, as I understand it.

A We would have to check it's an en suite for an isolation room. I couldn't tell you without looking at the plan. There were----

Q Can we then go to page 75? Again, I'm told this is a Room Datasheet for a single bedroom isolation.

A Yes, that will be, yes.

Q And what we see here is a list of information. If we ignore “lighting” for the moment, there are other things like “Dust spot efficiency” and so on, I don’t want to ask you about. We do have “Ventilation”, and there’s figures, “Relative humidity”, “Extract”, “Air changes in air supply”, “Air changes in air”, which are simply left blank and a reference to HBN 4-01.

Just looking at that, if you’re not a very learned user, it doesn’t tell you very much about the ventilation arrangements for that room. Is that correct?

A I would-- Yeah, if they’re not familiar with the HBN guidance documents, yes, they wouldn’t know.

Q Is that the right guidance for immunocompromised individuals’ protection?

A As far as I’m concerned-- Well, as far as I’m aware, when this was designed, the HBN 04-01 supplement 1 was the guidance for isolation rooms.

Q Even for those who are immunocompromised?

A I might be wrong here, so you may need to-- I mean I may need to check this later, but I wasn’t-- I don’t believe there was-- even though there

was a reference in this version, they didn’t tell you the differences, if there were differences required. But I think you’d have to check with the M&E design team to----

Q I’m conscious you’re doing your best to cover a lot of ground, and if you don’t know the answer, please just say so.

Then, if we look at another one – can we go to page-- well, there is a data sheet for the lobby, and I don’t think we’ll go there other than my information is that there’s no information about the supply and extract ACH there either. There’s another reference to HBN.

Then we go to a typical patient bedroom because it’s still in 2A, page 250. So this is a typical patient bedroom in Ward 2A, which has the mechanical ventilation note supply air rate at 40 litres a second.

You may not know the answer to this, but people who look at these issues often talk about things in “air changes an hour”, and I can see the form has a provision for air changes an hour.

Why isn’t that there? Do you know-- Why is somebody insisting on using 40 litres a second?

A I kind of know the answer, but I

can't answer what the 40 litres represents in terms of air changes because I'm wondering what it does too. But when I-- when this was originally-- so I think you've read in the Room Datasheet document that I prepared to assist, that the information on the M&E pages, we would export out of our database an Excel schedule to allow the M&E team to amend what you see in these boxes as the data.

So this statement comes-- and I've traced it back to the Tribal(?) Room Datasheet originally, which was in ADB – it's exactly words that were written within that derogation in the bid about ventilation.

So, they've taken what was agreed in a derogation and they've bespoked it and put it into these mechanical ventilation notes.

Q Well, what I was going to ask you-- Sorry, let me start that question again.

What we've been discovering so far is that a non-isolation room in Ward 2A has an open-gridded ceiling, a chilled beam, and it would appear a 40-litre-per-second air provision, which seems to be, if you like, the standard provision for a standard room anywhere.

So, I just wondered, do you know who provided the environmental information that we find in the Room Datasheet?

A Yeah, the information was from ZBP so, as I explained, the export of the environmental, what is called an EDS sometimes, the Environmental Data Schedule, it actually started with the Tribal Room Datasheets.

So, in ADB Manager, you can also do the same thing as CodeBook so they exported an Excel of the template Room Datasheets and asked ZBP to review the mechanical pages and mechanical ventilation lighting pages, and then they put their design or what they were designing to in here, and this particular sheet is one from the CodeBook Room Datasheets that we managed the process. If you had a coloured version of this, which unfortunately you've got the scanned version, you can normally distinguish the changes that somebody has made with a colour; so they were green. So there are other versions that are in colour of these Room Datasheets and you can see anything that was green text was amended.

Q Do you know, and if you don't know, please just tell me, if anybody

skilled would have signed off the inclusion of that environmental data for a room in Ward 2A on the part of GGC?

A I know from the Appendix K that they-- Well, it was reviewed with Wallace Whittle and possibly Capita, I think, from that contract set, and it wasn't on Room Datasheets, it was on the Export Environmental Data Schedule that those Excel documents were approved at that stage and put into the contract. Thereafter, these Room Datasheets are the ones that were developed afterwards and the same process would have been-- we exported the data into Excel for the mechanical engineers to review and copy the data or amend the data.

THE CHAIR: You've used the expression "Export Environmental Data Schedule" previously; just so that I can keep up, could you explain what we're talking about?

A So the database-- So even if you called it "ADB", but the database of this information – I'm trying to explain I simply. You can export it into Excel to allow it to be amended by somebody else outside of the database, and they don't require the CodeBook or ADB Manager in order to update, and it exports it into a format they can use and type into, and

then we bring it back in to the database and then that updates the database to what they've amended. And then what you see here on the Datasheet is what was produced.

THE CHAIR: Right. So forgive me for being so pedestrian----

A No, that's okay.

THE CHAIR: Pedestrian and ignorant, I suspect. So the Export Environmental Data Schedule is an expression used to describe an Excel spreadsheet, which is a place where you can locate, for example-- well, not for example, in this case, environmental information relating, I suppose, for each? There's a line for each room?

A Yes, so----

THE CHAIR: Or a row I suppose it should be?

A Yeah, a row there and a lot of columns with-- This information is in columns and the room is in a row and depending on the stage where we are in the process you will either have 400 rooms or thousands and thousands, but we managed it by department. So everything we broke down into something easier to handle so there was an Environmental Data Schedule per department, yeah, and at one stage there

might have been, you know, just 10 rooms in a department when we were doing room types. When we were doing fully loaded (the whole department), you'd have had a line for every room.

Q If I can just sort of take advantage of you as, again, testing my ignorance. Mr Connal drew your attention to at least two ways of describing the supply of air into a space, and in the Room Datasheet we're looking at it was 40 litres per second. Am I right in saying that if you wish to convert information in litres per second into air changes per hour, you would have to know the volume of the space?

A Pass, but it sounds like you should know the volume of the space, yes.

THE CHAIR: Yes, I mean, I'm just really indicating my ignorance of arithmetic, I suspect. Okay. Right.

A No, I'm with you there.

THE CHAIR: But there is not an easy conversion?

A No, I believe there's a formula but, yeah.

THE CHAIR: I mean, they're it they're describing different sorts of activity?

A I think they are, yes, but, yeah.

THE CHAIR: Yes, right. Thank you. Sorry, Mr Connal.

MR CONNAL: We'll just stick to 2A at the moment, if we may, partly because it's one of the wards of particular interest to this inquiry, and because we've been looking at it just now. First of all, can I just take a general point from you? Am I right in understanding from your statement that, if you went looking in the ADB sheet box or window, you wouldn't find an ADB sheet for someone who was immunocompromised?

A No, because I did that test because I also wondered because it was a question that was part of your questionnaire. So I asked our data manager to have a look at all the versions of ADB that we have access to and he gave me the export of the rooms that are available and there is no room that's designated for that as a bedroom type.

Q Just in fairness to you, if we can just go back to your witness statement, please, at, I think it'll be page 201, hopefully. It can't be 201, apologies. I'm looking for the reference to-- 200. Go back a page. I'm still trying to find a reference to the immunocompromised person. Question 30. Have we got question 30? Perhaps the next page.

Oh yes, this is the answer that you've just been explaining to us from your memory. Thank you for that.

You say you've "checked the information provided by UK database manager and included the full contents of lists from 2013, '17, and '22." They're the ones you have access to. "There are no specific single rooms to identify immunocompromised patient bedrooms." Then you say, "I believe the assumption in ADB is that patients most at risk will be accommodated within isolation rooms." Where did you get that from?

A That's just in my opinion. I think that might be why there isn't a different room type. It's quite unusual ADB doesn't identify it, but then, like I said, I can see that they never have identified that as a different room type. So, to be honest, I'm also unsure why as well, I'm afraid, so I----

Q I suppose we're just trying to work our way around, with your assistance, to try to find out how we started with this positively pressurised airlocked area with lots of protective rooms into one where there's no airlock. Most of the rooms are just standard and they've got chilled beams, which is just a standard provision found anywhere else

in the hospital. Now, you, I think, try to deal with that in your witness statement and I think you suggest it's the way the ADB sheets have been used. Is that correct?

A Yeah, I mean when I went through the history I tried to see how variations of room types occurred and I could trace some codes. You know, I think the one that I've written there for the adult Haematology-Oncology bedrooms where we kind of put another number to make it identify as a different room. So, you know, this was a long time ago. I've assumed that we did understand there were some differences in some of these rooms and certainly for the rooms that were haemodialysis, they were definitely identified by ourselves as different rooms, because we had different equipment.

So normally you would try and keep the same brief for-- You know, you're trying to standardise a building. If you can maintain the same brief, you will. You make variations of a particular room type if there are variations required.

Q Can we try and get your witness statement at, it should be, 225. Again, if my numbering is right. Yes, this is a page at which I think you're trying to work your way through the process

you've just been outlining and you say, about halfway down that page, "The ZBP design progressed with a template RDS revised brief understanding the bedrooms within the isolation suite should not have chilled beams. However, the M&E design for the non-isolation bedrooms [so that's in 2A we're talking about] progressed with an agreed RDS brief that the remainder are generic children's single bedrooms,

and the generic bedrooms included with an M&E ventilation design the provision of chilled beams."

I mean this is in a discussion--starting with a discussion about chilled beams, but essentially what you're describing there is a process in which someone, presumably ZBP, has designed Ward 2A with a significant number of just standard rooms. That's really what you're saying to us there, isn't it?

A Yes, when I looked at the detailed part of the process for the Room Datasheets here, yeah, they have been designated a standard bedroom, the ones that aren't isolation rooms.

Q Yes, and then you say in that same paragraph, "There's an agreed RDS brief," and then you say, "The design was reviewed in M&E workshops

and the inclusion of chilled beams was approved through the RDD process, therefore installed." So that suggests that somebody who understands these things has looked at them and said that's fine, wearing a GGC hat, if I can be colloquial. Is that what you're saying there?

A Yeah, because there were M&E workshops, so what I described as the Environmental Data Schedules I have on-record versions that were produced when there was the whole building, like data for every room, and those schedules were issued to ZBP and they had workshops with the client. Well, NHS and Multiplex. I'm not sure who from the client was in those workshops, the ones that we can't find information from in terms of minutes, but we received updated versions of the Environmental Data Schedules, sometimes with commentary, back, and, like I said, at that time every single room in the building was there so they were reviewing the data for these rooms as well at the same time in that department.

Q Yes. I just put it to you, just in case it helps at all; in your earlier evidence, you suggested that one possible person who might have been in these discussions wearing a GGC hat

was Wallace Whittle. Now, I have to suggest to you that at least the information I have is that Wallace Whittle's role for GGC as a sub-consultant of Currie & Brown ceased very early in 2010 and, therefore, if somebody calling themselves Wallace Whittle was in any of these meetings later, it would be because Wallace Whittle re-emerged as a consultant on the Multiplex side.

A I know. Yes. No, as far as I'm aware, they were involved up to the point of reviewing the Appendix K full business case submission and, thereafter, they were not involved client side on the hospitals. Then, like you say, they took over ZBP and then they changed their name as well.

THE CHAIR: Can I just take the opportunity, you referred there to Appendix K, I think.

A Yes.

THE CHAIR: We see that on a number of occasions in your witness statement. Entirely my fault, I think the expression "Appendix K" comes from the contract but I haven't quite got it into my head what Appendix K is.

A No, Appendix K, it comes from the contract, the way it was set up, but it's effectively full business case, FPC. So

the end of what was our stage two was the end of the submission for what was Appendix K, which was the full business case approval process. So Appendix K was really just the drawings that went into the contract.

THE CHAIR: So it was the----

A The deliverables, so to speak.

THE CHAIR: So, we're talking about a suite of drawings.

A Yes, a suite of drawings that found their way and were bound into the contract, second the 2010 contract, which was the Project Bible update with the Appendix K drawings bound in.

THE CHAIR: So, Appendix K would have been assembled at the end of 2010 when the full business case was submitted, is it?

A Yes, that's correct. So Appendix K was referenced in the bid documents, and there was a scope explaining what was required for Appendix K, and then at the end of 2009, beginning of 2010, there were some discussions over what level of detail we could produce in the one year, or less than one year that we had. Then there was an agreement of the design documentation that was going into Appendix K in that timeline, and the rest

of the documentation that they wanted to see previously in Appendix K became the reviewable design data.

THE CHAIR: Right, okay. So, some of the context of Appendix K would have been other than drawings, or was it all drawings?

A No, there were schedules, like the Environmental Data Schedule that was also included in Appendix K----

THE CHAIR: Right, okay. Thank you.

A -- I believe.

MR CONNAL: Yes, I'm going to come back to this again, but can I just ask you that general question? We know there's this issue of what we've been calling the derogation, the 6 to 2.5, which is not something you were personally involved in but, apart from that, am I right in understanding that, even at that stage, at the full business case stage, compliance with SHTMs and so on was still a requirement of the contract?

A Yes, it was. Unless there was an agreed contractual variation, yes.

Q Other than the one we know about, the M&E clarification log, derogation 6 to 2.5, or whatever you want to describe it, are you aware of any other agreed derogation from SHTMO 301?

A Ventilation, yes, I am aware of something in the isolation rooms where the air change went from 10 till 6.

Q Apart from that.

A Apart from that one too.

Q And where is the agreement of that recorded? Do you know? Where would we find it?

A The 10 till 6?

Q Yes. I ask you that, because one of the questions that we debated long and hard at the last session of the Inquiry was, if you're going to derogate from something like that, please try and make it clear who's agreed it and record it somewhere. I just wondered where that one might be.

A I mean, I would agree with you, it is normal that you have a derogation schedule that is more transparent, that you can see all the decisions. For some reason, this wasn't the approach, and it meant that there were some derogations that weren't clear because they were in the contract documents and not clear, as in they followed through. If you ask me that again on another project, we wouldn't do that. We would keep them on a derogation schedule.

So, the other examples that you will

find are within the fire strategy. So the fire strategy, obviously, a very complex design. So there are fire engineering aspects to it. So there are things that are captured in the fire strategy document that you could term them as derogations, or a methodology of compliance.

I think the same would be the case for acoustics. There would also be similar things within the acoustic strategy, and that strategy document will have, in the back of it, a list of what you call derogations. Or they didn't like to call them derogations, alternative compliance.

Q The reason I ask you that question is that we've been talking a lot about Room Datasheets and people importing environmental information and possibly discussing it at workshops and so on. But as a matter of good practice, would I be right in assuming that one shouldn't find that any of that leads to a derogation from an obligatory piece of national guidance like SHTMO 301, unless somebody says that's what it is and it's been agreed by A, B and C and it covers X, Y and Z?

A Yes, it would be normal that you would agree it before you changed something to demonstrate a derogation, yes.

Q Rather than having to kind of work out in retrospect who said what at a workshop and what the output of the workshop was and who signed what document, I'm simply asking you whether as good practice it should have been recorded if it existed.

A Yes, it's good practice to have recorded it on a schedule, so you could see it.

Q Thank you. My Lord, I have one or two other questions relating to this, but this might be as good a point as any to rise.

THE CHAIR: We'll take our lunch break. We'll sit again at two o 'clock.

(Adjourned for a short time)

THE CHAIR: Good afternoon, Ms White. Now, Mr Connal.

MR CONNAL: Thank you, my Lord. Just before we leave Ward 2A, in your witness statement at, I think, page 83 of the bundle, you say that – I assume it was an exception and therefore you've illustrated it – the user group refused to sign off on the discussions for that ward. First question, do you know why they refused to sign?

A Well, obviously, I'm only

saying what I found from the emails that-- Jonathan, who was the lead architect for that department, but it says that they weren't happy with the Schedule of Accommodation, so operationally they weren't happy with, I think, the area and the space that they had. I think they believed it wasn't the equivalent area that they had in their existing facility. I think that's the reason why.

Q Do you know what happened about that?

A I do not. I couldn't find the final officially signed version from the users. That one, I could not find a copy of. I understand it was agreed outside of the user group meeting, but I don't know when.

Q Thank you. Right, so that's a separate part of your witness statement where you say you couldn't find a stamped version of the Ward 2A documentation. Is that right?

A That's correct.

Q Thank you. If we turn to Ward 4B, which of course had two iterations, I just want to ask you a few questions about that. We've already----

THE CHAIR: Sorry, Mr Connal, I apologise for interrupting. Mr Connal used the expression "sign off" and gave

the example of 2A where there had been no sign-off. Now, I think I've understood that there may be, let's say, three user group meetings, and was there some sort of formal procedure at the end of the meeting to indicate something or other?

A Yes, so at the end of each meeting, the architect would mark up a drawing as a record of the comments that were affecting the plan layout. In some instances, there was a lot of redrawing to be done, you saw the sketch examples, and then that there were-- I wouldn't call them full minutes but there was action points that were recorded by the NHS and returned to us. Then you would review those in the next meeting, and then the NHS had a procedure with a design acceptance form, and those design acceptance forms were supposed to be signed off by the lead of that particular user group, as a record for them internally. They normally would send that back to us as a record.

THE CHAIR: Right, so there's a pro forma to be completed on behalf of GGC, indicating what?

A It was their pro forma. There is a version I gave you a copy of. It was their pro forma to indicate that they had consulted the correct stakeholders and

that they were happy with the layout. They were accepting it as what they would accept as a design for their department, before it went to the next stage.

THE CHAIR: And do I also understand from your earlier questions and answers that a drawing would also be physically initialed?

A Yes, we normally try to get a wet signature on a drawing as a record as well. So you'll find lots of versions of the drawings that would have a signature from those who attended the meeting itself, and then those design acceptance forms came afterwards as a record.

THE CHAIR: Thank you.

MR CONNAL: If we go to 4B, we know that that ward, because we've touched on the clinical output specification earlier today, where there's a reference to the needs of lots of people who are immunocompromised, we know there's no ADB sheet for immunocompromised-- we've been through that discussion.

One of the issues that arises in relation to 4B, given the clinical output specification, is whether it should have been designed with 10 air changes an hour.

Now, are you able to assist us as to why that did or did not happen?

THE CHAIR: Sorry, Mr Connal, my fault. I didn't hear the full question. Whether designed----?

MR CONNAL: Why it wasn't designed with 10 air changes an hour.

A I don't think I really know why it wasn't. I do know that the-- I'd have said the same process applied to every department where the ADB code was attributed to the rooms and then it went through the same process of the environmental matrix being exported.

I don't know why they didn't just default to 10 air changes at the beginning, but I do know from user group meeting 1 that there was a big discussion about whether that unit would actually come to this project or come to the building. So I'm not sure whether that became something where they didn't interrogate the detail for a period of time, but yes, I don't know why it wasn't 10 air changes that was applied by M&E.

Q One of my reasons for asking is this – and I'll try to put this as clearly as I can. We know that when it came for 4B to be subject of a requested chain, one of the responses from Multiplex was, in essence, "You can't get 10 air changes

an hour here because of the ventilation equipment that we have in place." Let me put it another way: "Unless you do some very major work."

So, I'm just wondering whether once you design the system to produce 2.5 or 3 air changes an hour and you put in the ducting and everything else that goes with that, which we've heard is very different from the ducting you would have for 10, does that not create a situation in the adult hospital where it's quite difficult to ventilate a single ward at 10 air changes?

A I'll answer from an architect's perspective, not from an engineer or designer of the ventilation system. But yes, my understanding is that they size the air handling plant in the plant room to what-- yeah, to what the actual detail part of it is. So it could be that the reason they were saying that is they had no more capacity or spare capacity in that particular plant room because each plant room services different areas of the building. So it could have been that they had no more spare capacity within that particular plant room to increase the air changes.

Q So, from an architect's perspective, does that mean it would

have been possible to design the plant rooms etc. to provide 10 air changes an hour to Ward 4B had that been the desired intention?

A I couldn't tell you whether there was enough space in the plant room for the plant. You'd have to ask the designers of the plant room but, in theory, they should be able to have adequate plant or spare capacity in the plant.

Q We know who the ventilation designers were at ZBP. Do you know – and if you don't, please just tell me – who approved the ventilation specification for the original Ward 4B?

A I don't know.

Q And what about new 4B? Do you know who did it for that?

A You're talking about post-the PMI----?

Q Yes.

A I wasn't involved on a day-to-day basis at that time, so I don't know exactly who was directing that PMI.

Q Thank you. Diverting into a slightly different topic, in 4B you accept that the ceiling type originally provided did not meet the original clinical output specification request for a sealed environment. Is that correct?

A Yes, that is correct.

Q Because it should have been-- That should probably have been responded to with a type-A ceiling, i.e. a plasterboard ceiling?

A Yeah, either a type-A plasterboard ceiling or you can have gridded ceilings with extra clips to seal the system, yes.

Q In your witness statement, in effect, you accept this was something that shouldn't have happened?

A Yes, because the statement-- if when the ceilings were rechecked and somebody rechecked the clinical output spec, they would have noticed that statement in about sealed. So, yes, it should have been corrected at that stage.

Q We've heard a lot of evidence on this already, but am I right in understanding that you have to get the ventilation that you want right fairly early on in the process because of the way it impacts on ceiling voids and duct sizing and everything else?

A Yeah, that's correct, because you need to know how large the ductwork is and the size of the plant room.

Q Later in your witness statement, you say-- I can give you the page if you want – if you need it, just let me know – you say that Frances Wrath

and Peter Moir approved the ceiling finishes for Ward 4B.

A Yes. Well, they-- yes, they stamped and validated the drawings, yes.

Q Again I'm just trying to see how that fits, because it's either your responsibility to get it right, to meet the initial specification – and it doesn't matter whether Frances Wrath recognised it or not – or alternatively, are you saying that it's not really an issue because, after all, GGC signed off on it?

A No, but I do believe that you could have achieved-- the ceiling could have worked with a gridded ceiling. It could have achieved-- Well, with the clips, it could have been sealed but yes, you know, that is what happened.

They signed off a drawing. You know, yes, I do agree that there was a statement within the clinical output specification that suggested it should have been a different ceiling at the beginning.

Q Can I ask you something that has been puzzling some of us? Help us if you can, if you I can't please just say. When the clinical output specification for Ward 4B was drawn up – and we've discussed it – it sets out to create, shall we say, a protective environment for the

people using that proposed ward – that's my phrase – an environment which has certain features designed to better assist the people who are having to use it, which is different from a standard ward.

When the time came for an application to be made to change this to accommodate the BMT unit, and you remember that sequence of events at least in outline, the position was, as we've been told by you and many others, that the information was, "We want to bring the BMT unit into 4B, and the people in 4B are going into 4C." Is that what you recollect?

A I think my understanding of 4B and 4C are maybe not the same as the understanding that is for BM 4C now. If you look at page-- well, I don't know – 220 on this document here. So, the best way I can describe it is through this simple diagram.

My understanding of what was Haematology-Oncology and BMT was all contained within the purple area 103, and when you start talking about 4C, I'm unclear whether you're talking about the department of everything inside 103 or you're talking about another wing which could be 101.

This is something that confused me

with some of the questions, because I knew that Haematology-Oncology ward including BMT were within that purple zone. So that PMI description describes everything happening within 103, and in 101 there's just an isolation suite of two bedrooms that are part of that PMI – 228, I think it was.

Q Were the patients-- proposed patients for 4B not being moved into what had previously been designated as a renal ward?

A I'm just explaining when we were doing the work, or when I reviewed the work between 4B and 4C, I am-- you know, PMI 228-- the terminology of Ward 4B and 4C, that came after, you know, when the building was opened. So my understanding of what I thought is 4B is all contained within Haematology-Oncology ward 103, which had originally 14 bedrooms at the beginning and then ten bedrooms from user group meeting 1 feedback.

So half of that 103 was outside, and then PMI 228 instructed the rest of the bedrooms that were inside the purple zone to become part of 103 again, as in terms of what 4B-- so I don't know whether, when they call 4B and 4C, whether they're both within the purple

zone, if that makes any sense to you.

Q Well, if I can ask you to look at page-- around page 215 of your statement, if I can find the right section. The paragraph starting, "My understanding is that Ward C was designed…" It might be on 6. It's probably on the next-- 7? Yes.

On page 217 of the statement, you say:

"My understanding is that Ward 4C was designed as a renal ward following a particular specification."

Because the question I'm trying to get at is that everybody seems to say, "What we were told was we're going to move the people at 4B and we're going to put them in this other area called 4C, which was previously a renal ward."

Does that not suggest that the people who needed a protective environment in 4B needed a protective environment when they were moved somewhere else?

A Yes, but like I said, I don't know whether-- when they talk about 4B and 4C, whether the split was the 103, you know, had-- The PMI 228 that we were involved with during construction was only encompassing bedrooms in 103. So user group meeting one, up to

the point of the PMI 228 instruction, half of 103 was designed for Haematology-Oncology; the other half of 103, there's a split down the middle of that ward wing, was designed for renal, where we were told to take out Haematology-Oncology and just design the beds for generic inpatient renal.

So I have to admit, when you talk about 4C, I'm still unclear in my mind, because it's not how we called the wards, whether it's half of 103 or whether you're talking about 101 as well, if it's possible for you to clarify with the NHS how they've re-designated the naming of the wards from the design stage.

Q I'm simply trying to come back to the same question in a way that----

A But it's the same answer, either way, to your question. The half of 103 that was part of PMI 228 was not designed for Haematology-Oncology after user group meeting one, and it got changed to be the same as the rest of Haematology-Oncology in PMI 228. On that diagram on page 220, the blue 101 was designed as a renal ward and wasn't part of PMI 228, apart from the two isolation rooms.

Q Well, that bit, I think, we're okay with. The broader question I'm

trying to ask, coming away from what was in the change order for the moment is, if you're the recipient of an instruction or a suggested instruction, because that's what it would be at the start, the general effect of which is, we want to change the use of a part to, let me call it, upgrade it for the moment to accommodate the BMT unit, what we're do with the haemato-oncology patients that we were previously going to be occupying that area is move them into another area.

Then that would suggest that that second area, whatever designation it had at the time, needed a protective environment. I was just trying to work out whether the answer is, "Well, we won't do any work unless somebody specifically tells us to do it," or the answer is, "Well, once we're told that, it's our job to say, 'Well, you'll need a protective environment here.'"

A I think what you're talking about is work that took place after the building was handed over, if you're talking about the renal ward after, because PMI 228 occurred during construction, and it was handed over as 103 was handed over, all with the intent of being Haematology-Oncology/BMT in 103. So there were no patients in the

building, it was still a construction site being built. So if work happened after the handover in 2015 and patients were moved around into different wards, it didn't involve us, apart from the work we went back to do in 103 to change the ceilings, which took place before a patient was occupying the ward.

Q Well, it may be that you can't help us, but you understand that the thrust of the question I'm getting at----

A No, I do----

Q -- the narrative that the Inquiry has been given appears to indicate that what the designers and contractors were being told was that there was an existing haemato-oncology ward, and the people there were being moved to another location. Then the change order focuses on what was to happen with the original site, the 4B, as we now call it. I suppose I was just puzzled as to what happened to the thinking about the protection of those who were being moved.

A Yes, and you're correct, if there was work after handover----

Q No, no, this is at the time of the change order. In other words, should there have been a discussion between Board and contractor about what protective environment should be

available to the prospective patients who would be moved from 4B?

A I'm not sure I actually understand. Are you talking about during construction?

Q Yes.

A I've seen the drawings and I think I shared the markups that were discussed. I wasn't party to those meetings I wasn't on, but I've seen the record of the meetings and the programme of the PMI 228. I think it clearly demonstrated where they were expecting the rest of 103 to be the same, there was an asterisk about HEPA filtered, designed to the same standard as Haematology-Oncology. That's what I saw in the markup drawings. The chilled beams that were previously in 103, when half of that ward was renal, were omitted as part of the work.

Q We're obviously stuck with the definitional question of, what's 4B and what is 4C?

A Yes, I think so, because I'm not entirely sure that 4C-- I think what happened is 4C might be in the zone 101 on that drawing and that further work took place afterwards.

Q So, when you say in your witness statement that Ward 4C was

designed as a renal ward, that's not correct?

A Well, this is what I mean, when I started looking at them, I couldn't understand why there were statements saying they were chilled beams, because when I checked 103, there were no chilled beams, but 101 had chilled beams. Then when I started to look at the ZVP drawings, I started to realise that maybe my understanding of 4C was not the same, because I couldn't understand why you'd be saying that there were chilled beams. So it meant to me that there was something that I didn't quite understand, maybe how they designated the wards after handover, but my understanding was, 103 was two wards in one finger.

THE CHAIR: Do we know the date of the drawing you have on 220?

A Yes, these drawings, I think this was how the design was handed over. I think there's records, I don't know, I haven't got it here, but I can certainly find the date for you of those, but this was just the most simplistic diagram to explain what we had designed in each of those ward fingers on Level 4.

THE CHAIR: This had been designed by 2011 or----

A Well, the changes happened during 2012 or ‘13.

THE CHAIR: My memory of the change that brought what we’ve been describing as the BMT Ward, or 4B, to the Queen Elizabeth was, my recollection is that it’s in 2013.

A Yes, so it was PMI 228. Yes, that’s correct. So, 103, I think this data drawing, it could either be at the very beginning when everything was in the purple zone, or it could be at the very end, I don’t know, but it was split down the middle and you had Haematology-Oncology on one side. If we had a detailed 1:200 plan, I could explain it to you, but half of the ward was Haematology-Oncology and the other half of-- when I say a “ward,” I’m talking about one of those legs, because it’s 28 beds in that one leg. There were originally 14 bedrooms in that one leg of 28 that were Haematology-Oncology. It got reduced to 10. PMI 228 then put all the rest of those rooms in purple back into Haematology-Oncology/BMT.

That’s when ZBP changed the design for the half that had been redesignated “renal.” It’s probably confusing to you, I know, I’m sorry.

THE CHAIR: Your recollection is

that the purple finger, 103, was divided into two separate wards or may have been?

A It was two separate wards at the beginning and 14 bedrooms became 10 bedrooms at user group meeting one to two, and then PMI 228 put more bedrooms back into 103. So they occupied the entire purple piece at the end of PMI 228. I might be wrong here, but I thought that was Haematology-Oncology and BMT in the same whole finger.

THE CHAIR: Mr Connal.

MR CONNAL: Can I just ask you to look at page 212 of the witness statement that will come up now? Just so you’re clear where I’m getting the phraseology I’m using from, you see about the middle of the page, following a change order request in July 2013, it was confirmed the bone marrow transplant service would transfer to Ward 4B, and the haematology patients that originally planned to accommodate Ward 4B would move to 4C.

Now, at least on the face of it, before you get into discussing change orders and contractual payments and all that stuff, it suggests two areas need consideration of the environment. One is,

well, what do we need to do on 4B to bring it up to whatever standard you want for the BMT service? Secondly, what do we need to do to-- what you're describing here as 4C, because we're moving people who had a special environment in 4B into 4C. Do you recollect anyone discussing, as it were, moving the 4B environment to 4C?

A I think, as I said, I wasn't involved in this part of the project at this stage. I wasn't on a day-to-day, working on a project but when I reviewed the markup drawings that somebody in my team developed with the client, and then I think Multiplex had the little programme, it demonstrated on the programme that they were to discuss the ventilation requirements in the process. But I couldn't see any minutes of meetings of what was discussed, so all I could see was what I could find. So I have no recollection, unfortunately, to bring to the table there, but it did suggest that they had discussed the ventilation.

Q In the course of our discussion about Ward 2A, we identified a possible explanation for why an area that was originally envisaged to be in a particular form might not have ended up that way and might have ended up with just

generic rooms. I wonder if I could ask you to bear with me while we do a little bit of an exercise with ADB codes and updating of ADB codes, because it may come out with an answer that's not dissimilar, or it may not. Let's just see.

Can we look at bundle 43, volume 5, page 411? Now, on our inventory, what we've got here is a document called a Batch 2 ZBP Update. This is part of it. First of all, do you recognise that as something you've seen?

A I recognise the numbers but I'm not sure whether this document is a PDF of the Excel, or----

Q Page 413, the same bundle.

A There you go, yes. Sorry, it's come from this----

Q There's another document which we have labelled, or we've been given as, "Batch 1 ZBP Update".

A Yeah.

Q Is that something you remember seeing?

A Yeah, so this document looks like it's the ZBP Environmental Data snip. It certainly looks like it's come from there.

Q The two documents that we've just brought up, one just a list, the other one is an expanded sheet that we need to slide back and forward along to see

properly; why would you have occasion to see these, or you and your colleagues?

A If you go back to that first document----

Q Yes, okay. Go back to page 411, please.

A So this looks just like-- So the Environmental Data Schedule, or the room types that we created for in Stage 2, this looks like it's come from the list of the rooms, so it's got a-- that left-hand column is a department code that's come from our naming convention, so from Nightingale's naming convention.

The middle column is an ADB briefing code, and then the next one is the generic name of the room type.

Q Right. So if we go to page 412, at the top of the page we've got "Naming Convention". Well, let's leave that aside for the moment. Then we have a code and then we have a description, and what we appear to have here are three codes, all BO305A3, and three descriptions, Single-Bed Haematology, Type 3, Type 2, and Type 1. Now, just pausing there for a minute, would you be able to tell us how these codes would be deployed?

A Yeah, so when I went back to check, I believe the naming convention of

Single-Bedroom Haematology-Oncology Type 1, Type 2, Type 3 came from our team that were developing the 1:50 rooms, and I believe Type 1, Type 2, Type 3 are to do with different shapes of rooms, and that came from our team. And then it did look like somebody in our team had understood that the Haematology-Oncology required a different brief so it was identified as a different brief, so that's why it's got the A3.

Q Now, can we just go to page 103 of the same document, which I'm told is a list of rooms from March 2010. Is that a document that's been updated by these ZBP updates?

A No, no. When we talked this morning about the ADB libraries that we had available, this has come out of our current versions of what we have access to in ADB Manager, so this is what you get within ADB. So this was the 2013 list of rooms that were available in 2013 in the Database that we have access to.

Q Can we go to page 413? Now, this is where we'll need to scroll across so we can see the content of the document. This is a list of rooms with specifications and, if we can find them, there are, I think, two rooms with the

designation “BO305A3”. If we can just find that. Yes, just coming off the base there: Single Bedroom 1, Single Bedroom 7, and then there’s a reference to “temperature” in the middle.

Then on the right-hand side, we’re just picking up that the ventilation column appears to be the-- Well, we’re taking for the moment, as a standard, 40 litres a second, balanced or negative, etc. Does that perhaps suggest to us that the original intention of creating a Haematology-Oncology label code, which would have different attributes, hasn’t actually found its way into this document?

A I think it hasn’t. The example that we’ve got on the screen here are actually the generic bedrooms, but I think when I looked at the ZBP Schedule that the Haematology-Oncology bedrooms-- they filled out the same environmental information on those bedrooms as well. So, in terms of what was put in the Room Datasheet, it did appear that they’d basically applied the same environmental brief to the Haematology-Oncology bedrooms, but when I looked at their ventilation drawings it actually wasn’t and they had designed it at 40 litres, I think, per second. So there was some information that hadn’t been updated or

hadn’t been addressed properly in this document so----

Q 40 litres a second is what I might describe as “the standard specification”?

A Yeah, yeah, yeah. So when I looked at the-- because the M&E ventilation drawings, when I looked at those drawings to see what was actually designed to, that Haematology-Oncology ward was designed to, I think it was 80 litres per second.

Q Do you know where that came from?

A The drawing? Let me have a flick through. I can find it for you.

Q I’m only asking the question because of the indication that somewhere lurking in these complicated exchanges there’s this assumption that, if you’re immunocompromised, you get put in an isolation room and. if you’re not in an isolation room, then you’re just in a standard room.

A Yeah, I know, and I think that there was an understanding that this was different, but they definitely didn’t apply the correct data when they reviewed this for the Haematology-Oncology ward.

Q But if 80 litres comes in, which would give you about six, roughly-- If 40

gives you two and a half to three----

A You're better than me at calculating.

Q -- then we're assuming that 80 gives you six, assuming it's a linear comparison, which no doubt someone will tell me later I'm getting it wrong. I'm just wondering where the six came from, how anybody decided on six or agreed six?

A I don't know. I have to say I don't know. I think I found-- On page 219 of my statement there's the references to "Mechanical Services Ventilation Layout Fourth Floor". So is that bundle 43, volume-- If you try looking there we might find the drawing.

Q Sorry, we're on page 219 and you're looking at?

A Yeah, that ZBP drawing.

Q Bundle 43, volume 4, page 671.

A Let's see if it's right or wrong. Ahh, there we go. Excellent references. So, if you zoom in on any bedroom-- Yeah, there you can see that was what they designed and this drawing came after-- this was part of PMI 228 when they updated this drawing, so you can see there was 80 litres per second and the "H" with the brackets means HEPA filter.

THE CHAIR: My fault, Mr Connal, I

didn't get the bundle page number of the drawing we're looking at at present.

MR CONNAL: All right. I think your colleagues to the left will have it.

UKNOWN SPEAKER: 671

THE CHAIR: 6?

UNKNOWN SPEAKER: 71.

THE CHAIR: 71 of bundle 43?

UNKNOWN SPEAKER: Bundle 43.

THE CHAIR: Thank you.

MR CONNAL: No, thank you, my Lord.

THE CHAIR: Volume 4.

MR CONNAL: Yes. The bundle number has disappeared for me behind the drawing. Yes.

(To the witness) So that's where you demonstrate that, by that stage, it was 80 litres a second and HEPA filtered?

A Yes, yes. So I don't know why they didn't show that in the Environmental Data Schedule, but----

Q We'll leave that drawing. Thank you very much. (To the witness) Can I ask you a general question? Given the background to why we're all here, your firm were the architects, you were the "lead architect", whatever the right phrase is. Were you also described as the "lead designer"? Is that right?

A I think on this project, "lead

consultant", but----

Q In your statement, you very fairly say, "Well, I'm not a ventilation engineer," but architects working on health care projects, because of the nature of the environments they have to build, tend to be more involved with technical matters than perhaps if you were simply building standard housing or something. Given your role, and by that I'm not necessarily meaning you as an individual, but your firm's role, would it not have been reasonable to expect you, as a collective, to pick up on some of these issues that we've all been labouring with, you know, the 2A issues, the 4B being apparently unsatisfactory – that's no doubt subject to debate but, you know, certainly enough to create a reaction whereby the users voted with their feet.

I'm just trying to ask that and I don't want to point the finger at you in saying you know, "You, Emma White, missed this," but I'm trying to get a feel for how this contract should been organised, as to whether somebody in your position with the kind of expertise that you would glean in healthcare ought to have been spotting this possibly a lot earlier?

A Yeah, I think-- How to answer this? So I would say that sometimes-- I

mean, on this project it was decided to use the Room Datasheets and the Environmental Data Schedule and use that information to demonstrate the ventilation design. My experiences certainly post this project-- and I prefer the information to be more clearly demonstrated on drawing. So, you know, ZBP did produce Environmental Strategy Drawings. I don't know if you've seen any of those yet, but when I recheck them there's a note that just says, "Refer back to Environmental Data Schedule."

The reason I say that is that I think, you know, a complex building-- that this was a building that had been thermally modelled so each facade, every room, it does have a difference. You know, a building has different facades and, even though you're looking at a building that's got four ward wings, you've got north, south, east and west, and different levels of heat build-up can occur in a different facade, as we all understand that, so what was designated as a certain air change was there also to stop the building from overheating, so, yeah, I think the information would have been better demonstrated on a drawing. I think it's quite hard with the voluminous nature of the Room Datasheets and the

Environmental Data for anyone to see some of this information if you're not, you know, going to look at it or you know where to find it and, as the demonstration of that for the Haematology-Oncology room data shows you, it actually wasn't updated to what they actually had designed. So, yeah, I would probably say I would-- Yeah, I prefer now not to rely upon a Room Datasheet, which is normally used as a briefing document, and I think the design and the drawings need to more clearly demonstrate the design.

Q Yes, I think this is probably consistent with the question I was asking earlier that we've had endless debates about, how the ventilation derogation should have been recorded, where it should have been recorded, etc., but if you were going to have any of these other issues arising, the question is how best you create a situation which you say, "Well, this is what we're going to do, this why we're going to do it, and you and you and you are all agreeing to this for these reasons."

A Yes, so on this project the process was through the export, it was the agreed process to use the Environmental Data Schedule. That was

the agreed process, that's what Multiplex wanted us to do, and it was easier for those schedules to be reviewed than for you to find the page in the Room Datasheet, if you've seen how many thousands of pages are in the Room Datasheet. So the Schedule was supposed to be an easier way of seeing the information, but it obviously still relies upon people checking what they're putting in and updating it correctly.

Q Well, in that kind of context, can I ask you to look at a document, which is bundle 43, volume 6. I have a note that says it's document 18, paper apart. It should be a kind of spreadsheet-type document. (After a pause) It's not the thing that's on the screen at the moment. A-ha.

A Oh, okay.

Q Now, maybe you can read it but I can't. We'll need to expand it.

A Yeah. I know what this is.

Q I suppose the question is, do you know what that is?

A I do yeah.

Q What is it?

A So this is-- Remember I was describing the M&E Workshops and the review of the Environmental Data Schedules?

Q Yes.

A So this is a document that was prepared and it shows-- These were the meetings we weren't in but Brookfield and I'm not sure if you have Julie Miller coming to the hearing or not, but she used this document to go through each one of those Environmental Data Schedules to recheck both the comments that they'd received from the NHS and Multiplex's own comments on the data. So they were sending this back to ourselves, so there's an N/A comment here, and our comment saying, you know, "ZBP need to provide the updated information."

Q So is this, and I'm not meaning this in a critical way, essentially an internal document to the Multiplex Group, those working on the Multiplex side of the fence?

A No, I believe it was shared with the NHS team. This was the recording of the M&E Technical Workshops when they reviewed the outstanding comments on the Room Datasheets in relation to the Environmental Data.

Q Do you know – I mean it doesn't tell us – who's making what are described as "the Board comments"?

A Unfortunately, I don't think I

know the answer to that one. The Brookfield comment, I know the process was led by Julie Miller, but it probably would have been Julie Miller and Ken Hall working through this. I don't know who Board comment was attributed to. If you have one of those two coming in the next couple of weeks, they might be able to remember who.

Q Yes, okay. Thank you. Completely random question, do you know anything about the Board Project Risk Register?

A No.

Q I thought that might be your answer, but I was asked to ask the question.

A Yeah. Yeah, we weren't always shared some-- in fact even, yeah, sometimes the Multiplex Risk Register we didn't see either, but, yeah, I haven't seen the Board one.

Q Right, okay. Well, we can leave this document. Thank you very much. Let me go to some other topics. Let me ask you another more general question. One of the challenges of the modern world is we're all doing stuff electronically, things are being sent from here to there, you know, extracted from and returned to other documents and so

on and so forth. If you're trying to create a special hospital environment for a particular patient cohort, you think it would be useful for those involved in that design process to visit the existing environment which is said to be what is desired in the new location. For instance, in this case, the existing Schiehallion Ward of the existing Beatson Unit.

I'm just asking the general question, because, in the old days, somebody with a clipboard would have gone off to them and wandered around and done some measurements and written it all down and come back and said, "That's what we're being asked to build here," but I just wonder whether that kind of practical process has got a bit lost, I don't know. Tell me.

A Yeah, I'm the one that was doing the processes, but I have seen that in some departments that our architects asked to visit-- I think it was Renal actually. They asked to see the existing facility. I wouldn't disagree that it would have been beneficial to go to visit the existing facility and we do normally do that. I don't know if our architect for the Schiehallion went, I'm sure they did go on a visit, but I don't know if they went to see that actual department. I'm not sure.

Obviously, it would have been, you know, quite restricted access for the patient group's perspective, but, yes, it would be, and normally is, good practice to go and see what the existing facility is, notwithstanding the fact that it might not represent exactly how you would ideally design something, but it would give you a good idea.

Q And you might be converting from an older building to a more modern building and so on?

A Yes, yeah.

Q If you're given a clinical output specification that doesn't have, you know, reams of ventilation, air changes and all that kind of stuff, one way of finding out what the user wants would be to go and visit the site and investigate there. Would that be fair?

A Yes.

Q I want to ask you just a little bit about another topic that I know is not directly your responsibility. We're going to touch on chilled beams a little bit and the famous M&E Log, which you are not responsible for creating but you've done quite a lot of work in your statement of trying to find out to the best of your ability what happened when and how.

The first question I have is this. If

somebody decides to alter the Maximum Temperature Variant, as it was usually called, this change from 28 degrees to 26, would it be obvious to anyone making that decision that it could have knock-on effects on other things, because usually things do, they don't just exist in isolation?

A Yeah. I don't think it would have been obvious to them. I know what you're referring to here but, yeah, I don't believe it would have been obvious to them. I think I said it in my statement. I do know that they experienced overheating in the existing wards and they were concerned about that and I think that's probably why they lowered the standard and obviously subsequently that created other technical problems.

THE CHAIR: Am I right in thinking that the "they" in that answer is the GGC users?

A It wasn't the users, I think it was within the Employer's Requirements, so the GGH Project Team. I think they were trying to address Estate issues that they were having in existing Estates and they were concerned on overheating.

THE CHAIR: Right, so it wouldn't have been obvious to the GGC Project Team?

A I can't see how it could have been obvious to them, because I think you would only know any potential impacts through a thermal model or something that an engineer could develop. So, yeah, I can't think how you could-- Yeah, I don't believe they could have foreseen that.

THE CHAIR: Thank you.

MR CONNAL: I suppose they might have done a risk assessment or something like that?

A Yeah, I think possibly, but, you know, I try and think, if I was in that position back then, could you have known? I'm not sure. Like you say, I'm not sure it would have been obvious, but you probably would have-- like you say, if you added it somewhere in your documentation with a risk, possibly, but I'm not sure they would have understood the risk, I guess is what I'm saying. I guess only their Technical Team could have, at that time, advised them if there was a risk.

Q You're very fairly pointing out that when you tried to work out as best you could from interrogating the available material what had happened over the ventilation derogation and why, the impact of the change in the temperature

variant seemed to play quite large. Is that correct?

A Yeah, it does appear that that was a big influencing factor, because I think you can see from what I found that the ZBP tried to-- with the Ward Tower, what we had at the bid-stage, they tried to achieve what was stipulated in terms of air changes and they couldn't technically make it work without, you know, adjusting the overall design.

Q Just so we deal with it, you cover this in your witness statement at 179. Sorry, it must be 180. In fact, you go through this in quite a lot of detail in your witness statement and endeavour to set out what you've been able to find out about what the reasoning was. Part of the issue for the Inquiry, of course, is that we know what the log says. One can debate whether the log is the right place to put something like that in, but we know what the log says, but we've not been able to track communications elsewhere within the Board structure beyond-- Basically we're told that the Project Team knew about it. Can you help us at all from your researches as to who was aware of this at the time?

A So I think I've described how, you know-- how I knew about it was from

the Project Bible and, you know, being told this was the agreed derogation on ventilation, and then when I went back to the history, I saw it being changed at the beginning in the datasheets that even Tribal were preparing at the beginning. I can only assume based on, again, what I saw in the documentation that you wouldn't have agreed that without reviewing it with technical advisers.

So I couldn't say exactly who would have known, but I would have been surprised if it wasn't-- As I named, Alan Seaborne and Peter Moir would have been aware. They were the ones that were managing the contract part. They had discussions directly with Multiplex. We were obviously not involved in any of those contract discussions. I don't know who else.

Q Thank you. On the question of chilled beams, quite correctly, in your statement, you quote the then existing guidance on chilled beams. The only question I have about that, which appears on page 60 of your statement – so we better, in fairness to you, bring that up – you see the little quotation you've conveniently put in there. It says, "Chilled beam units should be easily accessible for cleaning and maintenance." One can

see that in an open area or a corridor or something, but if you're envisaging a single bedded room with a very ill patient in it, does that not immediately raise alarm bells?

A No different to a light fitting or a ventilation grill, they're all in the ceiling and they need to be maintained but, no, I have to say definitely, at this time, my knowledge of chilled beams was less, but it wouldn't have highlighted anything to me other than the fact that we know ceiling-mounted equipment needs to be accessible.

Q Chilled beam is perhaps, like we said, to be obviously different from a grill, because a grill is simply a passive piece of metal or plastic, doesn't matter. A chilled beam has a water component to it and is designed, if it's an active chilled beam, to actually have a motor doing something. Does it not pose a different issue to simply a grill or a light fitting?

THE CHAIR: Sorry, you allowed your voice to drop there.

MR CONNAL: Sorry. Does it not pose a different issue to a simple grill or light fitting?

A Yes, but if you think about a radiant panel, which is also in the ceiling, a radiant panel has heating elements in it,

I think. Not as much, probably, accessible requirements as a chilled beam. Again, I'm not an expert on this, but I would have thought they were similar maintenance requirements, but it hadn't crossed my mind that it would be an issue.

Q What you've set out in your witness statement at page 187 is the result of your inquiry as to, well, now that chilled beams are less popular than they were, how do people deal with some of the issues that they were designed to deal with? You've set out the result of your inquiries as to how it appears these issues can currently be dealt with.

A Yes. Chilled beams are still used in hospital designs. The current project I'm working on has chilled beams. But the latest guidance that came out in I think it was 2021, I think it makes it much clearer about what you should look to deal with when you're working with chilled beams. I think the onus is on everybody to understand the implications more. It doesn't say you can't use them, but it says more about, "You must understand and risk assess the use of chilled beams."

THE CHAIR: The reference to 2021, I take it, is the recent publication of

HTM 03-01.

A Yes, that's correct.

MR CONNAL: I've got some other questions I've been asked to raise with you, so if you could just bear with me. I have a feeling some of them you may actually have covered somewhere in your witness statement. If I don't immediately have the page reference, then my apologies.

The first question I've been asked to put to you as well, was the ventilation derogation based on the summer temperature? You've told us the influence of the temperature variant on it. BREEAM, do I understand your position to be, so far as you've been able to find out an answer, it didn't seem to be the main driver for the derogation?

A I don't think it was, because on the same page you've got open here, actually, it says we didn't go for all the credits available for BREEAM, for thermal ventilation. I don't think it was such an issue. I think the thermal part of it, BREEAM, I think, was achievable.

Q In fact, you question whether the CO2 target can be met, but you think BREEAM a different kettle of fish?

A Yes, although the CO2 target is obviously embedded in BREEAM, the

CO2 target of 80 kilograms was challenging, and now we have to do zero carbon, so there's even bigger challenges now with healthcare design but, yes, at the time, the 80 kilograms was challenging to achieve. Then when you threw that temperature issue in, then it did become a problem.

Q Can I just ask you a question which links into another point I want put to you shortly? Can I ask you to look at bundle 26, at page 202, which is an extract from the Employer's Requirements, section 5.6. Bear with us while we bring it forward. 202. You see in the middle of the page, the statement, "Prevention and control of infection shall remain a primary consideration of the contractor in the design and construction of the works." First of all, can I ask you whether you were aware of that provision?

A Yes, because this sort of statement here is a standard requirement, "control of infection." Yes, I do vaguely remember reading it at that time, but the----

Q I ask the question because in various places where IPC issues crop up, there's almost a tendency for respondents to our questions to say,

"That was for the Board. That's the Board's problem, they had IPC people." Does this not make it your problem, or your challenge?

A Yes, we're all responsible for designing to comply with infection control requirements.

Q How do you go about bringing that in, as it were, on your side of the fence?

A So, normally, and in this case it did happen on this project too, that you have a representative from the client's infection control team in the meetings and we would always ask for that, so that they're part of the design process in the same way FM, facilities managers, somebody from that side is also involved. So if you read the rest of this 5.6.1, it talks about movement of goods and segregation, clean and dirty food trolleys. So this is more about the lift calls, so we designed FM lifts that are separate from patient lifts, that are separate from lifts that you would move a patient from operating theatre, say, down to critical care.

So when looking at that, we're looking at the flow within the hospital. So not that you'll see the documents, but within the bid stage there were a lot of

diagrams prepared to demonstrate the separation of flows from clinical FM public staff, so those were all embedded within the design, basically. So we would have gone through that design with the client, involving FM and infection control and then, like I said, the infection control had a representative in the meetings with us, so that they could point out if there was any concerns about the design as it was being (inaudible).

Q How would they know what questions to ask? The infection control representatives – I think we're going to hear from them this week – were largely – and I don't mean this in any criticism at all – nurses who at different points were part of the team. Do you not get into this known/unknowns and unknown/unknowns question? Unless you know there's an issue, you don't know to put up your hand and say, "Whoa." It's fine if somebody says, "Tell me what you want to do with the trolleys on Level 4," from an infection control perspective, but do you not need to know enough to ask the questions, if your method of bringing in IPC is to work?

A That's not our method of bringing in IPC. It's part of the design process. So there are more specific

guidance documents in the HBNs about infection control. So, as we understand, sometimes it's about a room adjacency. So during the 1:200 stage, our team would have asked some questions, or infection control may have flagged up, "We don't like the adjacency of the clean linen next to a waste room," or something like that, so those are things that they would inform us about.

Although with our experience, we would avoid those sort of adjacencies but it's not always possible. Sometimes some hospitals have particular experience of certain issues and they would tell us to change the design to respond to that. There are specifics to – I want to say "trust" – each board, or each organisation can have some variations. I'm not sure if I answered the question, but I think we're all responsible for designing to prevent control of infection but, as designers, we don't necessarily know where they've had issues in the past.

Having somebody that's working with the organisation helps us understand that we may need to change something that is specific to their organisation, or that they can find something, they have more expertise in some things than we do

as designers.

Q So far as the ventilation derogation is concerned, you were not involved in that process. You've simply tried to find out what happened. Were you able to find any risk assessments anyone did?

A I couldn't, no. I didn't see anything in the records.

THE CHAIR: I take it from that answer that you looked.

A I did look and when this first came up in, whenever it was, 2020/2021, when we first started and I tried to look at that, I hadn't gone and looked at as much research as I've done recently, and I didn't understand the derogation either. So I will admit that, in that time period, I had also not appreciated that derogation existed back then. Only when I rechecked it, I realised it was-- I will admit, it's not normal and we did not do that on Peterborough, which was the previous project we worked on with the same contractor, same design team, but Peterborough was not a low carbon building, and it was a different type of building. It did have Haematology-Oncology, and a lot of the specialist departments.

MR CONNAL: Bear with me a

minute. Are you able to help us at all as to why there were chilled beams in the Ward 2A ward, where there were immunocompromised children, where it had been concluded you shouldn't have them in the adult immunocompromised areas?

A I think what I've written in my statement, all I could assume from seeing the documentation again was that the M&E team hadn't applied the same approach on the adults to the children's. I don't really understand why myself either, but it does appear that they assumed that the rest of the Schiehallion Ward outside of the isolation rooms was a standard ward, which obviously it kind of was not. So I don't know why it was assumed the same. That's why I ended up with a chilled beam.

Q Earlier during your evidence, we've discussed this possible assumption that there are effectively two types of people: there's immunocompromised people who are put in an isolation room; and there's everybody else who isn't. Do you think that should have been obvious to everybody working on this project, that this split had taken place or may have taken place?

Because the next question is going

to be, so shouldn't somebody from GGC have gone, "Whoa, whoa, that doesn't sound right"? And if so, who? It's a long question. I'll come back to the start of it. We discussed the possibility that, in effect, you ended up with a binary choice. You're either in an isolation room or you're not getting any special protection. Do you think that binary choice was evident during the design process?

A I don't think so. Yes, when we say "no protection," the patients were in 100 per cent single bedrooms, and they were in a controlled ward that has only got that patient group in. Yes, I don't know the rest.

Q Thank you. I'm just looking at the timeline. I think this might be an appropriate time to pause for a minute or two and check if there are any more particular questions while we still have the witness with us.

THE CHAIR: All right, we'll do that. Ms White, what Mr Connal now needs to do is to, as it were, check with the room to see if there's anything that he should have covered, which there's a wish to be covered. So there may be more questions, there may not be more questions, but could I ask you to return to the witness room perhaps for 10 minutes,

possibly for a little bit more, and then we'll ask you to come back and we'll find out what the situation is.

THE WITNESS: Okay.

(Short break)

MR CONNAL: I'm advised, my Lord, there are no further questions.

THE CHAIR: No questions.

MR CONNAL: I'll simply indicate to the witness a lot of issues are dealt with very fully in her statement.

THE CHAIR: Yes. Ms White, Mr Connal advises me that there are no more questions from the room. He may indeed wish to confirm this. As I would say, we have to thank you for your evidence today, but behind that evidence is a very comprehensive statement which, obviously, you've taken a lot of time, trouble and effort over.

Really, it's in large part because of the work you have done beforehand, providing us with the information in the written statement, that your oral evidence was shorter than it would otherwise have been.

So, can I express on my own behalf, but also on behalf of the members of the Inquiry team, our gratitude for your

contribution to the work of the Inquiry? You're now free to go. Thank you.

THE WITNESS: Thank you.

(The witness withdrew)

THE CHAIR: Now, my understanding is that we're in a position to resume tomorrow at ten o'clock with perhaps Mr Mackintosh tomorrow, and is it Francis Wrath or----

MR CONNAL: It's Frances Wrath and Mairi Macleod.

THE CHAIR: Well, thank you everyone. We'll see each other tomorrow.

(Session ends)

15.42