Scottish Hospitals Inquiry
Witness Statement of
Emma Louise White

Preface

Following receipt of the Scottish Hospitals Inquiry (SHI) Questionnaire at the beginning of 2025, almost 4 years from my initial investigation into some of the matters within the 65 ‘core’ questions, I initially intended to follow the approach of simply answering the questions. However, soon after I started to try to respond to the questions, I realised this would require more than my own recollections of the project, which for me started at the beginning of 2009, over 16 years ago. The task started to quickly become quite unwieldy. Whilst I was more than familiar with many of the processes, as I was often heavily involved in these as part of my role, the technical details requested within the questions were considerably more challenging, particularly as many delved into the domain of mechanical engineering, specifically specialist mechanical ventilation, which as an architect I have a limited understanding. Whilst the architect is often seen as the person who is responsible for all the design of a building, we are not qualified engineers, and we rely on the expertise of other members of the design team to provide these skills. We do however retain the responsibility to co-ordinate the design team. Likewise, a specialist healthcare architect means an architect familiar and experienced in the design of healthcare facilities. As healthcare facilities are technically complex buildings, a healthcare architect will normally have an increased technical expertise, and a knowledge of the technical design requirements and guidelines; they are still not a qualified engineer. A specialist healthcare mechanical and electrical engineer is critical to the design of healthcare buildings.

Proposed Approach

The approach of ‘simply’ answering the questions was also not the most effective way of demonstrating the inordinate amount of work it took from all the teams involved in the design and construction of the New South Glasgow Hospital. Nor would the approach necessarily provide the SHI with easy access to the answers to the questions it is seeking.

Therefore, I set about the task of creating a narrative of the abbreviated story of what I, as an architect, experienced working on this project. I have attempted to set out for the Inquiry my own account of my involvement in the project and the processes; and tried to place the questions within the context of the whole project, providing as simple as possible summary of what happened throughout the design stages of this hugely complex project.

This has not been a simple exercise; and given the time constraints and volumes of project history, I have focussed on areas I think would be most beneficial to the SHI; with the structure of the narrative following the sequence of the project and the design process.

Personal Details and Professional Background

This section addresses Part 2A of the Inquiry's Questionnaire, with my current CV appended to the back of the statement as requested. Thereafter, the ‘self-penned’ section follows, which has been structured in Chapters to sequentially cover the following items.

1. Project Background

This section includes a summary of the project stages, my role and IBI’s role. I should clarify to the reader who may get confused with the company names, you will see references to Nightingale (NA) and IBI throughout, which is essentially the same company I still work for, who are now part of the Arcadis group. In addition, you will see references to Brookfield, Brookfield Multiplex (BM) and Multiplex. Again, this is the same company.

2. Project Bid Stage

This section provides the context of how the design initially evolved as a response to the Client Brief, including the bid design dialogue meetings. I have used visual ‘snips’ throughout this section to assist the reader.

- The Employer’s Requirements (Client Brief)
- The Exemplar Design
- Competitive Dialogue Meetings
- Bid Submission and Compliance
- Bid Clarifications and RFIs

3. Project Contract Bible (2009)

This section provides a summary of my understanding of the ‘Project Bible’ (2009), the various Logs which are contained within this, and their influence on the Stage 2 design which followed. Again, I have used visual ‘snips’ assist the reader.

- The BIW Log
- The RFI Log
- The Clarifications Log
- M&E Clarifications Log
- The Sustainability Log
- Summary

4. Project Stage 2 – Detailed Design of the Adult and Children's Hospitals

This section captures a summary of the project set-up, structure and focuses on the architectural design, and processes to enable the project to achieve Full Business Case (FBC). Again, I have used visual 'snips' to assist the reader, with a particular focus on addressing the departments of interest to the SHI, namely Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A & 2B – RHC; PICU – RHC; and Isolation rooms.

- Overview of Stage 2
- Team Structure
- User Group Meetings (UGM) / Stakeholder Process / Meeting Protocols
- 1:200 Department Layout Plans including a summary of the departments of interest
- Schedule of Accommodation
- Room Data Sheets including a summary of the departments of interest
- 1:50 Room Types
- Procurement Packages/Costing
- Appendix K/Full Business Case (FBC)

5. Project Contract Bible (2010)

This section provides a summary of my understanding of the updated 'Project Bible' (2010).

6. Project Stage 3 – Construction of the Adult and Children's Hospitals

This section continues the design process, with a focus on aspects of the design contained within the questions.

- Team Structure
- Programme
- 1:50 Fully Loaded Department Plans
- Room Data Sheets
- Reviewable Design Data
- 1:50 Reflected Ceiling Plans
- Sanitaryware and Taps
- Procurement Packages/Costing
- Construction Packages
- Handover and Site Inspections

Finally, for completeness I have maintained the SHI questionnaire structure to ensure that I have provided a response to the remaining questions. As I have developed the narrative and question responses together, some sections have been copied across from the narrative, and vice versa. As inferred earlier in my Preface, my answers to the questions are based on my recollections in the first instance. My answers are also supplemented with information I have gathered from the project record information, which I was required to research to supply a more fulsome response, other than 'I cannot recall'. The project record information I have researched includes both our internal records, and those that exist on Aconex, the online project management system.

Whilst answering the questions, I have tried to be clear about my role on the project, what I did and what my own actions were, as well as what actions were by my IBI team members, and what actions were by others.

B. Review of the 'Works Information'

C. Full Business Case

D. Design Role in the QEUH/RHC Project

E. Ward 4B and 4C

F. Ward 2A RHC

G. Isolation Rooms

H. Water and taps

I. Commissioning and Validation

J. Handover

Personal Details and Professional Background

I, EMMA LOUISE WHITE of Arcadis, Black Bull Yard, 18 - 22 Hatton Wall, London EC1N 8JH will say as follows:

My full name is EMMA LOUISE WHITE. I am employed as a Principal at Arcadis. I am a qualified architect and a recognised specialist in healthcare design with 25 years' experience in the UK and overseas in large-scale projects and healthcare facilities. I began working for Nightingale Architects Limited (**Nightingale**) in 2000. Nightingale was acquired by IBI Group (UK) Limited (**IBI**) in 2010. IBI was subsequently acquired by Arcadis in 2022 where I have continued in my role ever since. I hold the following qualifications: BA (Hons) Arch, BArch, RIBA Part 3; ARB Registered Architect/Corporate Member of RIBA since May 2001. My curriculum vitae is appended to this statement as Appendix 1.

1. **Project Background**

1.1 I understand that Multiplex was appointed to carry out the design and construction of the New South Glasgow Hospital (now known as the Queen Elizabeth University Hospital (**QEUH**) (the **Project**) by contract dated 18 December 2009 between GGHB as Employer and Multiplex as Contractor (the **Building Contract**).

1.2 Multiplex appointed Nightingale by a professional services contract dated 18 June 2010 to provide services as architect and lead consultant in connection with the Project (the **Appointment**). The Appointment provides that Nightingale was responsible for the design of the architectural works, architectural packages and the co-ordination of the design of other consultants, subcontractors, suppliers, authorities and other relevant parties/stakeholders into the overall design for the works. The Appointment comprised (i) the Agreement; (ii) the Conditions of Contract; (iii) the Contract Data Part One; and (iv) the Contract Data Part Two. The Conditions of Contract were the NEC Professional Services Contract, Option A: Priced Contract with activity schedules, June 2005 (as amended by the Contract Data).

1.3 I carried out the Project Lead role for Nightingale and therefore have first-hand knowledge of the Project.

1.4 The Project included the design and construction of a new Adult Acute Hospital and a new Children's Hospital. The Adult Acute Hospital (QEUH) comprises a thirteen-storey building, with a physical link corridor at level 1 to the existing Neurology Building; the four storey Children's Hospital (RHC) sits adjacent, with a physical corridor again at level 1 to the adjacent Maternity Building. Both hospitals are additionally linked to a basement level, including a basement services tunnel which in turn links both hospitals to the Facilities Management (FM) Hub and Laboratory (Labs) Buildings. An Energy Centre sits to the side of the Labs Building.

1.5 The Project Contract was structured in three Stages:

- Stage 1 – Construction of the Laboratory – commenced in November 2009 and completed in March 2012. The NHS Client's Design Team were novated to Multiplex's Team to deliver Stage 1; this was outside IBI's Scope of Works.

- Stage 2 – Detailed Design of the Adult and Children's Hospitals – commenced in November 2009 and completed in November 2010

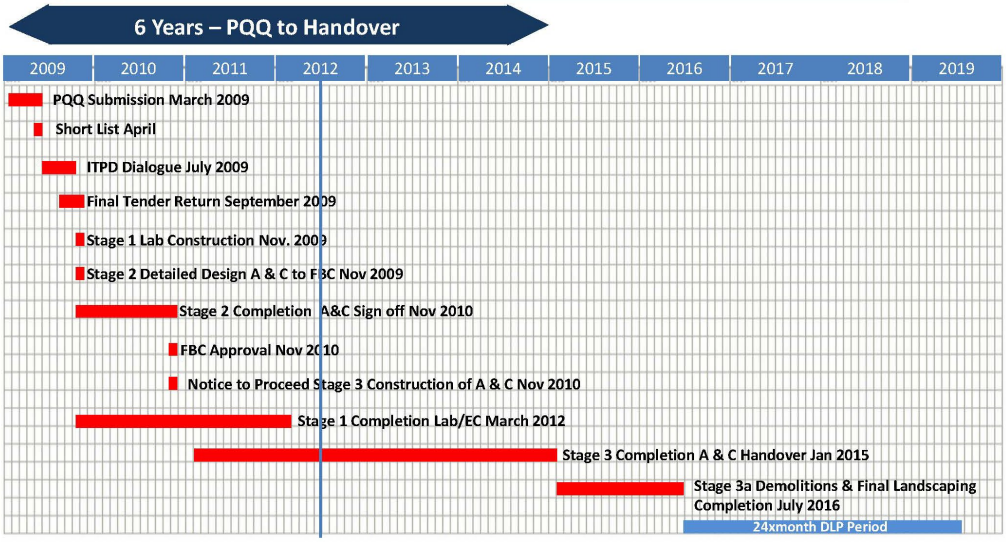
  This also included the new Energy Centre, which was part of the IBI scope of works. There was a phased handover of the Energy Centre to ensure part of this was operational to support the Laboratory Building, which also included the new FM Hub and Service Yard. The IBI scope interfaced with the Laboratory Building in the basement tunnel link between the two buildings.

- Stage 3 – Construction of the Adult and Children's Hospitals – commenced in December 2010 and completed in January 2015

- Stage 3a – Demolition of the Existing Buildings and Completion of Final Landscaping – commenced in July 2015 and completed in 2016

  The new Adult and Children's Hospitals were operational at the end of April 2015 and officially opened by the Queen on 3rd July 2015 and renamed the

Queen Elizabeth University Hospital (**QEUH**), and Royal Hospital for Sick Children (**RHSC**).



Project Timeline

1.6 At the time of appointment, I had been a fully qualified architect for 9 years, with 11 years' experience in healthcare (I had worked in the healthcare sector at previous practices prior to joining Nightingales in 2000).

1.7 My role on QEUH/RHC was a further evolution of the role I had on the Peterborough City Hospital PFI project, where I held a similar Project Lead role, working with the same Contractor and a number of the same Consultants/Subcontractors. Peterborough was a 95,000m2 major Acute Hospital including a dedicated Women's & Children's Unit, Cancer Unit including Radiotherapy outpatients and inpatients, Operating Theatres, Critical Care, A&E, Radiology, Pharmacy and Outpatients. In addition, there was a separate dedicated Energy Centre on site, with a below ground basement tunnel used for FM service links.

1.8 My responsibilities as Project Lead for the Nightingale/IBI team included setting-up the team structure and resourcing strategy, and working closely with the Project Director, Neil Murphy, to agree a Project Delivery Strategy which included bringing together Senior Architects/ Designers from across our UK offices in Harwell, Cardiff and Rochdale, to effectively provide a 'whole practice' approach, broadening the expertise beyond the London team, which was the Lead Office. This network of Senior Architects was collectively responsible for the clinical design of the departments, and attended the relevant User Group Meetings acting as the Department Design Leads. I was the Lead Co-ordinator for the Multiplex Design Team during the early stages of the project, and worked closely with the NHS project team to develop the User Group Meeting Programmes, Meeting Timetables, and developed a number of Design Processes and Protocol documents to assist with management of the project. I also shared responsibility during this time with the Nightingale/IBI Project Director for leading the Design Team Meetings and reporting the design progress to the NSGH Hospital Design Group. During the design stages each respective member of our team would stay in Glasgow to attend their meetings, generally over a couple of sequential days, and then return to their home office to progress their design work. When work progressed on site, we adjusted our team structure and our site-based Lead Architect, Liane Edwards, began to take on more leadership

responsibilities, with continuous support from the wider team, who would continue to split their time between Glasgow and their home offices.

2. PROJECT BID STAGE

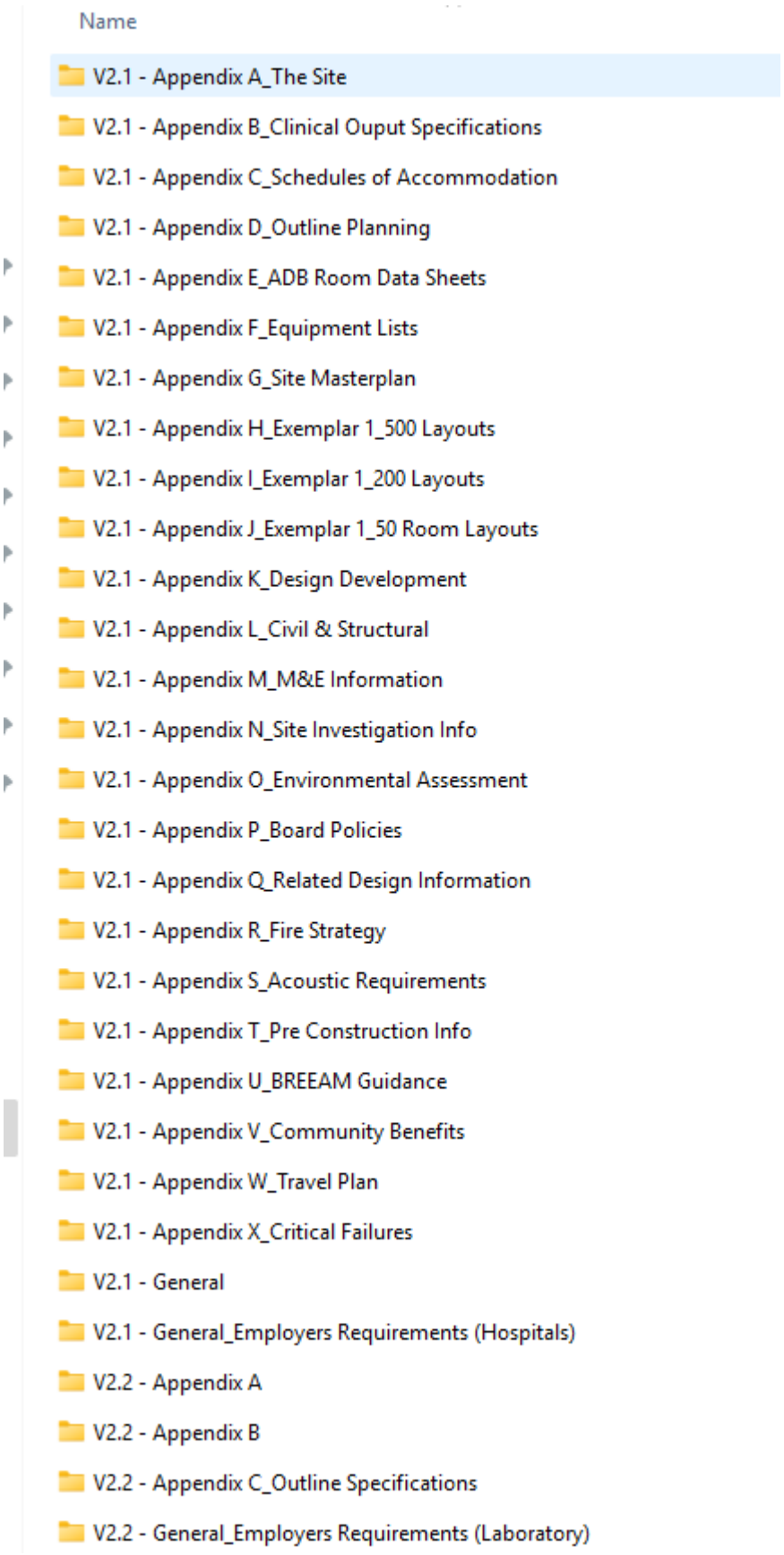
2.1 Following the Official Journal of the European Union (OJEU) Notice, and release of the Pre-Qualification Questionnaire (PQQ) in March 2009; Brookfield Europe (Multiplex) formed a Design Team, which included several consultants it had been working with since 2004 on the Peterborough City Hospital PFI project and were successfully shortlisted in April 2009. [refer to Section D Nightingales PQQ response which includes a summary of Nightingale's Healthcare Experience] (**A52701483 – NSGH - Pre-Qualification Questionnaire - Section D – Information on Advisers – Undated – Bundle 43, Volume 4, Page 1132).**

2.2 The Multiplex Design Team from Peterborough included Nightingale, Architecture/Lead Consultant; Tribal Consulting, Healthcare Planning; Gillespies, Landscape Architecture; and ZBP, Mechanical, Electrical and Plumbing Engineering (MEP). In addition, Key Supply Chain Subcontractors for Cladding (Structal and Praters) and MEP (Mercury Engineering) were members of the Design Team.

2.3 The Multiplex led team were successfully shortlisted in April 2009 as one of three bidders, and following the Bidders Open Day and Site Visit on or around 12 May 2009 the Invitation to Participate in Dialogue (ITPD) Tender Documents were released to the successful Contractor teams. [refer to 090512 Presentation to Bidders] (**A52701467 - HLM Architects - Introductory presentation to Bidders - Bundle 43, Volume 4, Page 1022**).

2.4 The ITPD Documents included Volume One – Project Scope and Commercial Document; Volume Two, which consisted of a series of Appendices including the Exemplar Design, Clinical Output Specifications, Schedules of Accommodation (SoA), ADB Room Data Sheets and Employer's

Requirements documents.



Extract from the IBI Project Folder

And Volume Three, which contained the ITPD Bid Deliverables and Evaluation criteria.

2.5 Exemplar Design

2.6 The Employer's Requirements note that an Exemplar Design was provided in order to '…provide an advanced level of briefing that will enable the Contractor's response at the end of the bid period to be more advanced in terms of understanding of the Board's and User's functional, clinical and quality requirements'.

The Exemplar Design included the following:

'a) 1:500 departmental relationship drawings for all levels of each building indicating functional relationships, entrances and main circulation routes (Appendix H);

- **A52701469 – NSGH – 1:500 Departmental Adjacencies Level-1 – 28 April 2009 – Bundle 43, Volume 4, Page 1122**
- **A52701482 – NSGH – 1:500 Departmental Adjacencies Level 00 – 28 April 2009 – Bundle 43, Volume 4, Page 1125**
- **A52701462 – NSGH – Departmental Adjacencies – Level 01 – 28 April 2009 – Bundle 43, Volume 4, Page 879** [including the location of Critical Care – QEUH and PICU - RHC]
- **A52701458 – NSGH – 1:500 Departmental Adjacencies – Level 02 – 28 April 2009 – Bundle 43, Volume 4, Page 831** [including the location of Ward 2A & 2B – RHC]
- **A52701463 – NSGH – 1:500 Departmental Adjacencies – Level 03 – 28 April 2009 – Bundle 43, Volume 4, Page 880**
- **A52701473 – NSGH – 1:500 Departmental Adjacencies Level 04 – 28 April 2009 – Bundle 43, Volume 4, Page 1124**

These Exemplar 1:500 departmental relationship drawings were to provide the bidders with the brief of where to locate each department in each hospital, including the critical departmental adjacencies. Only four of the departments in question; Critical Care – QEUH and PICU – RHC, Ward 2A & 2B – RHC were shown in these briefing drawings. The locations of Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH were not specified in the Exemplar Design, therefore it was left to the Contractor to propose locations for the remaining departments.

b) 1:200 departmental drawings for 7 no. key departments in the Adult's Hospital and 4no. key departments in the Children's Hospital indicating room adjacencies, circulation layouts, corridor widths, entrances and links to other departments/facilities. (Appendix I);

- **A52701471 – NSGH – 1:200 Acute Assessment (Adults) Room Adjacencies – 30 April 2009 – Bundle 43, Volume 4, Page 1120**
- **A52701472 – NSGH – Acute Assessment (Adult) Flow Diagram – 29 May 2009 – Bundle 43, Volume 4, Page 1123**
- **A52701453 – NSGH – 1:200 Emergency Department (Adults) Room Adjacencies – 30 April 2009**
- **A52701481 – NSGH – 1:200 Emergency Department (Adults) Flow Diagram – 01 June 2009 – Bundle 43, Volume 4, Page 1129**
- **A52701474 – NSGH – 1:200 Radiology (Adults) Room Adjacencies – 01 June 2009 – Bundle 43, Volume 4, Page 1128**
- **A52701475 – NSGH – 1:200 Radiology Department (Adult) Flow Diagram – 01 June 2019 – Bundle 43, Volume 4, Page 1127**
- **A52701468 – NSGH – 1:200 Critical Care Facility (Adults) Room Adjacencies – 30 April 2009 – Bundle 43, Volume 4, Page 1119**
- **A52701476 – NSGH – 1:200 Critical Care Unit (Adults) Flow Diagram – 01 June 2009 – Bundle 43, Volume 4, Page 1126** [Note this was the Critical Care – QEUH Exemplar]
- **A52701466 – NSGH – 1:200 Radiology (Adults) Room Adjacencies – 30 April 2009 – Bundle 43, Volume 4, Page 1021**
- **A52701470 – NSGH – Operating Theatres (Adults) Room Adjacencies – 30 April 2009 – Bundle 43, Volume 4, Page 1121**
- **A52701454 – NSGH – Operating Theatres (Adults) Flow Diagram – 01 June 2009 – Bundle 43, Volume 4, Page 772**
- **A52701457 – NSGH – Outpatient (Adults) Clinic Adjacencies – 02 June 2009 – Bundle 43, Volume 4, Page 830**
- **A52701452 – NSGH 1:200 OPD level 2 (Adult) Flow Diagram – 01 June 2009 – Bundle 43, Volume 4, Page 770**
- **A52701450 – NSGH 1:200 Generic Ward Floor (Adults) Room Adjacencies – 30 April 2009 – Bundle 43, Volume 4, Page 769**
- **A52701455 – NSGH – 1:200 generic Ward (Adult) Flow Diagram – 01 June 2009 – Bundle 43, Volume 4, Page 773**

- **A52701478 – NSGH – 1:200 Emergency Department (Children) – 07 May 2009 – Bundle 43, Volume 4, Page 1131**
- **A52701477 – NSGH – 1:200 Observation Ward (Children's) – 07 May 2009 – Bundle 43, Volume 4, Page 1130**
- **A52701460 – NSGH – 1:200 Outpatient (Adults) Clinic Adjacencies – 02 June 2009 – Bundle 43, Volume 4, Page 877**
- **A52701461 – NSGH – 1:200 OPD Level 0 (Adult) Flow Diagram – 01 June 2009 – Bundle 43, Volume 4, Page 878**

These Exemplar 1:200 departmental drawings were to provide the bidders with the brief of how each department should be laid out in each hospital, including the critical room adjacencies, and functional room shapes. Only one of the departments in question was included in the briefing drawings. There were no 1:200 department designs specified in the Exemplar Design for Ward 4B – QEUH; Ward 4C – QEUH; Ward 2A & 2B – RHC; PICU – RHC; Level 5 – QEUH. Ward 4B – QEUH, Ward 4C – QEUH and Level 5 – QEUH would have been assumed to be accommodated within the Adult Generic Ward template. Therefore, it was left to the Contractor to propose 1:200 layouts for the remaining departments.

c) 1:50 Room Layout Drawings indicating clinical functionality, room size and shape and compliance with ergonomic data. (Appendix J); and

- **A52701465 – NSGACL- Generic ADB Room Layouts – undated – Bundle 43, Volume 4, Page 957**

These Exemplar 1:50 room layout drawings were to provide the bidders with the brief of how each key room should be laid out, including locations of equipment such as the bed, shelves, dispensers; sanitaryware equipment such as the sink and shower and services equipment such as the medical gas outlets, power and data sockets. The drawings provided were 'pure' exports out of ADB and did not reflect the rooms in the Exemplar Design. Therefore, it was left to the Contractor to propose 1:50 room layouts.

d) ADB Room Data Sheets (Appendix E).'

- NSGACL-Generic ADB Room Data Sheets_iss2_rev1.pdf **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961)**

The Exemplar Design included ADB Room Data Sheets for a number of key rooms. Generic Single Bedrooms for both the Adult and Children's Hospitals, Isolation Single Bedrooms for Adult Critical Care, and Children's, and Gowning Lobby (Isolation). These can be referenced to demonstrate the level of environmental detail brief provided within the Exemplar ADB sheets. These also provided briefing information of the types of ceilings required, by reference to the HTM 60 ceiling types.

<u>Single Bedroom for the Adult Hospital</u>

- GEN-SGH - Generic Rooms - B0303 - Single bedroom: Adult acute with clinical support. Relative overnight stay. I refer to Page 2 NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961)**. It can be noted that the Exemplar ADB sheet contains no information on the ventilation brief.

ADB	Room Environmental Data	B0303

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B0303	Single bedroom: Adult acute With clinical support. Relative overnight stay
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	21	
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:		
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

Page 2 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 962** And that the ceiling type is a **HTM 60 type 5**.

ADB	Room Design Character	B0303

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B0303	Single bedroom: Adult acute With clinical support. Relative overnight stay
Room Number:		**Revision Date:** 07/04/2009

Walls:	Surface Finish (HTM 56): 5 Moisture Resistance (HTM 56): N i.e. Normal humidity. Cleaning Routine (HTM 56): To manufacturers recommendations
Floor:	Surface Finish (HTM 61): 3 i.e. Hard, impervious, jointless, smooth Cleaning Routine (HTM 61): To manufacturers recommendations
Ceiling:	Surface Finish (HTM 60): 5 i.e. Imperforate Moisture Resistance (HTM 60): N i.e. Normal Humidity Cleaning Routine (HTM 60): To manufacturers recommendations
Doorsets:	(HTM 58) Two sets of doors: 1x 1500mm, one & a half leaf, half glazed, obscurable; bed access. 1x2300mm, single leaf hinged with leaf and a half sliding/folding door, plain flush; wheelchair & ceiling hoist access, occupancy indicator, lockable, outside release.
Windows:	(HTM 55) Clear, solar control, privacy control
Internal Glazing:	(HTM 57) Clear with privacy control

Page 3 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 963**

With reference to the tables contained in **HTM 60 Ceilings**, I note on page 7 Table 1, which provides the 'Physical and performance characteristics', that a Type 5 ceiling requires to be imperforate (i.e. no holes/perforations in the ceiling membrane), with normal humidity and Class 1 spread of flame.

TABLE 1

Physical and performance characteristics	Categories of ceiling performance					
	1	2	3	4	5	6
Soffit:						
smooth	•	•	•	o	o	o
textured				o	o	o
imperforate	•	•	•	o	•	o
perforated				o		o
jointless	•	o	o	o	o	o
jointed		o	o	o	o	o
Humidity:						
normal	•		•	•	•	•
high		•				
Spread of flame:						
Class 1	•	•	•		•	•
Class 0				•		

• – indicates essential requirement o – indicates options

On page 9 Table 2 the ceiling membrane options are provided, including both jointed and jointless options. A Type 5 ceiling has multiple options; however, we traditionally use a jointed membrane with either concealed or exposed grid.

TABLE 2

Joint pattern and suspension grid	Membrane			Category					
	Material	Finish	Soffit	1	2	3	4	5	6
Jointless membrane concealed grid	plasterboard	site decoration	smooth/imperforate after joints filled	§	o	o	o	o	o
Jointed membrane concealed grid	reinforced plaster	site decoration	smooth/imperforate			o	o	o	o
			smooth/perforated				o		o
	metal	factory finish, stove enamel etc	smooth/imperforate			o	o	o	o
			smooth/perforated				o		o
	calcium silicate	site decoration or factory finish	smooth/imperforate		o	o	o	o	o
			smooth/perforated				o		o
	mineral fibre including compressed gas fibre	factory finish, emulsion-type paint	textured/imperforate or perforated				o		o
		factory finish acrylic paint	textured/imperforate		o	o	o	o	o
	perlite	self-finish	smooth/imperforate		o	o	o	o	o
			textured/imperforate				o	o	o
	vermiculite	self-finish	textured/imperforate				o	o	o
	wood composite	site decoration	textured/imperforate or perforated				o		o
Jointed membrane exposed grid	plasterboard	factory finish plastic coating	smooth/imperforate			o	o	o	o
	calcium silicate	site decoration or factory finish	smooth/imperforate		o	o	o	o	o
			smooth/perforated				o		o
		factory finish, spatter paint	textured/imperforate				o	o	o
			textured/perforated				o		o
	mineral fibre including compressed gas fibre	factory finish, emulsion-type paint	textured/imperforate or perforated				o		o
	wood composite	site decoration	textured/imperforate or perforated				o		o
Jointless traditional ceiling	plasterboard and/or plaster	site decoration	smooth/imperforate	§	o	o	o	o	o

§ – requirement o – acceptable

<u>Single Bedroom (Critical Care) for the Adult Hospital</u>

- GEN-SGH - Generic Rooms - B0303A - Single bedroom: Critical Care With clinical support. Relative overnight stay. I refer to Page 7 NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961)**. It can be noted that the Exemplar ADB sheet contains no information on the ventilation brief.

ADB	Room Environmental Data	B0303A

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B0303A	Single bedroom: Critical Care With clinical support. Relative overnight stay
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	21	
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:		
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

Page 7 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

And that the ceiling type is a **HTM 60 type 5**.

ADB	Room Design Character	B0303A
Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B0303A	Single bedroom: Critical Care With clinical support. Relative overnight stay
Room Number:		**Revision Date:** 07/04/2009
Walls:	Surface Finish (HTM 56): 5 Moisture Resistance (HTM 56): N i.e. Normal humidity. Cleaning Routine (HTM 56): To manufacturers recommendations	
Floor:	Surface Finish (HTM 61): 3 i.e. Hard, impervious, jointless, smooth Cleaning Routine (HTM 61): To manufacturers recommendations	
Ceiling:	Surface Finish (HTM 60): 5 i.e. Imperforate Moisture Resistance (HTM 60): N i.e. Normal Humidity Cleaning Routine (HTM 60): To manufacturers recommendations	
Doorsets:	(HTM 58) Two sets of doors: 1x 1500mm, one & a half leaf, half glazed, obscurable; bed access. 1x2300mm, single leaf hinged with leaf and a half sliding/folding door, plain flush; wheelchair & ceiling hoist access, occupancy indicator, lockable, outside release.	
Windows:	(HTM 55) Clear, solar control, privacy control	
Internal Glazing:	(HTM 57) Clear with privacy control	
Hatch:		
Notes:		

Page 8 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

<u>Single Isolation Bedroom (Critical Care) for the Adult Hospital</u>

GEN-SGH – Generic Rooms – B1602 – Isolation single bedroom: Critical care. I refer to Page 17 NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay - Bundle 43, Volume 5, Page 961).** It can be noted that the Exemplar ADB sheet contains the following information on the ventilation brief.

'Mechanical Ventilation (Supply ac/hr): 6.0 air changes/per hour.

Mechanical Ventilation (Extract ac/hr): 6.0 air changes/per hour.

Pressure Relative to Adjoining Space: BAL.

Mechanical ventilation (supply): To provide source or

protective isolation. Mechanical ventilation (extract):

To provide source or protective isolation.

Final filtration: EU10/11 to suit clinical requirements.'

ADB	Room Environmental Data	B1602

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1602	Isolation single bedroom: Critical care
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	27	Summer and winter (local control) temperature control: 16 to 27 deg.C
Summer Temperature (DegC):	16	
Mechanical Ventilation (Supply ac/hr):	6.0	Mechanical ventilation (supply): To provide source or protective isolation. Mechanical ventilation (extract): To provide source or protective isolation.
Mechanical Ventilation (Extract ac/hr):	6.0	
Pressure Relative to Adjoining Space:	BAL	Final filtration: EU10/11 to suit clinical requirements. Humidity: 40-60
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):	60	

Page 17 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

I refer to Page 18 NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay - Bundle 43, Volume 5, Page 961)** which notes that the ceiling type is a **HTM 60 type 1**. With reference to HTM60 table 1 and table 2 a Type 1 ceiling can only be provided with a jointless plasterboard membrane, with either a concealed grid or traditional ceiling. In practice traditional ceilings are not often adopted as modern hospitals are designed with services in a ceiling void above the rooms.

ADB	Room Design Character	B1602

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1602	Isolation single bedroom: Critical care
Room Number:		**Revision Date:** 07/04/2009

Walls:	Surface Finish (HTM 56): 3 i.e. Impervious, jointless, smooth Moisture Resistance (HTM 56): N i.e. Normal humidity. Cleaning Routine (HTM 56): To manufacturers recommendations
Floor:	Surface Finish (HTM 61): 3: Hard, impervious, jointless, smooth Cleaning Routine (HTM 61): To manufacturers recommendations
Ceiling:	Surface Finish (HTM 60): 1 i.e. Smooth, imperforate, jointless Moisture Resistance (HTM 60): N i.e. Normal Humidity Cleaning Routine (HTM 60): To manufacturers recommendations
Doorsets:	(HTM 58) Two sets of doors: 1x 1500mm, one & a half leaf, vision panel, obscurable; bed access. 1x 900mm, single leaf, vision panel, obscurable; person access
Windows:	(HTM 55) Clear, solar control, privacy control
Internal Glazing:	(HTM 57) Clear with privacy control
Hatch:	
Notes:	

Page 18 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

Single Bedroom for the Children's Hospital

GEN-SGH - Generic Rooms - B1802 - Single bedroom: Children/young people, with relatives overnight stay. It can be noted that the Exemplar ADB sheet, Page 22 NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay - Bundle 43, Volume 5, Page 961)**, suggests the following ventilation brief.

'mechanical ventilation (supply): refer to HBN text.

mechanical ventilation (extract): Inpatient barrier nursing. Refer to HBN text.'

It is also noted that negative pressure between the WC and bedroom.

ADB	Room Environmental Data	B1802

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1802	Single bedroom: Children/young people, with relatives overnight stay
Room Number:		**Revision Date:** 23/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	21	Winter temperature (degC): up to 24, independent control
Summer Temperature (DegC):	23	
Mechanical Ventilation (Supply ac/hr):		Mechanical ventilation (supply): Refer to HBN text. Mechanical ventilation (extract): In-patient barrier nursing. Refer to HBN text.
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:		
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		
General Notes:		Pressure relative: WC NEG to bedroom.

Page 22 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

And that the ceiling type is a **HTM 60 type 5**.

ADB	Room Design Character	B1802

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1802	Single bedroom: Children/young people, with relatives overnight stay
Room Number:		**Revision Date:** 23/04/2009

Walls:	Surface Finish (HTM 56): 5 Moisture Resistance (HTM 56): N i.e. Normal humidity. Cleaning Routine (HTM 56): To manufacturers recommendations
Floor:	Surface Finish (HTM 61): 3 i.e. Hard, impervious, jointless, smooth Cleaning Routine (HTM 61): To manufacturers recommendations
Ceiling:	Surface Finish (HTM 60): 5 i.e. Imperforate Moisture Resistance (HTM 60): N i.e. Normal Humidity Cleaning Routine (HTM 60): To manufacturers recommendations
Doorsets:	(HTM 58) Two sets of doors: 1x 1500mm, one & a half leaf, half glazed, obscurable; bed access. 1x2300mm, single leaf hinged with leaf and a half sliding/folding door, plain flush; wheelchair & ceiling hoist access, occupancy indicator, lockable, outside release.
Windows:	(HTM 55) Clear, solar control, privacy control. Window opening restrictors max 100mm at bottom
Internal Glazing:	(HTM 57) Blinds for glazed screens
Hatch:	
Notes:	

Page 23 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

Single Isolation Bedroom for the Children's Hospital

GEN-SGH - Generic Rooms - B1805 - Isolation single bedroom: Children/young people, with relatives overnight stay. It can be noted that the Exemplar ADB sheet, Page 27 NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay - Bundle 43, Volume 5, Page 961**) contains the following information on the ventilation brief, including reference to 'HBN text', and negative pressure between the WC and bedroom.

'mechanical ventilation (supply): refer to HBN text.

mechanical ventilation (extract): Inpatient barrier nursing. Refer to HBN text.

Filtration: BS6540 Humidity: 65-42 summer, 68-38 winter

Pressure Relative: WC NEG to bedroom.'

ADB	Room Environmental Data	B1805

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1805	Isolation single bedroom: Children/young people, with relatives overnight stay
Room Number:		**Revision Date:** 23/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	21	Winter temperature (degC): up to 24. independent control
Summer Temperature (DegC):	23	
Mechanical Ventilation (Supply ac/hr):		Mechanical ventilation (supply): Refer to HBN text. Mechanical ventilation (extract): In-patient barrier nursing. Refer to HBN text.
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:	BAL	Filtration: BS6540 Humidity: 65-42 summer, 68-38 winter
Filtration (%DSE and % Arrestance):	85/	
Humidity (%RH):		
General Notes:		Pressure relative: WC NEG to bedroom.

Page 27 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

And that the ceiling type is a **HTM 60 type 5**.

ADB	Room Design Character	B1805

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1805	Isolation single bedroom: Children/young people, with relatives overnight stay
Room Number:		**Revision Date:** 23/04/2009

Walls:	Surface Finish (HTM 56): 5 Moisture Resistance (HTM 56): N i.e. Normal humidity. Cleaning Routine (HTM 56): To manufacturers recommendations
Floor:	Surface Finish (HTM 61): 3 i.e. Hard, impervious, jointless, smooth Cleaning Routine (HTM 61): To manufacturers recommendations
Ceiling:	Surface Finish (HTM 60): 5 i.e. Imperforate Moisture Resistance (HTM 60): N i.e. Normal Humidity Cleaning Routine (HTM 60): To manufacturers recommendations
Doorsets:	(HTM 58) Two sets of doors: 1x 1500mm, one & a half leaf, vision panel, obscurable, lockable; bed access. 1x 1000mm, single leaf, plain flush, occupancy indicator, lockable, outside emergency release; wheelchair access. Door hinge protectors
Windows:	(HTM 55) Clear, solar control, privacy control. Window opening restrictors max 100mm at bottom, lockable, low sill
Internal Glazing:	(HTM 57) Observation window. Blinds, controlled by both sides
Hatch:	
Notes:	

Page 28 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

<u>Single Bedroom for the Children's Hospital</u>

GEN-SGH - Generic Rooms - B1811 - Single bedroom: Children/young people day care. I refer to Page 32 NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay - Bundle 43, Volume 5, Page 961**). It can be noted that the Exemplar ADB sheet contains no information on the ventilation brief.

ADB	Room Environmental Data	B1811

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1811	Single bedroom: Children/young people day care
Room Number:		**Revision Date:** 06/08/2007

AIR	Requirements	Notes
Winter Temperature (DegC):	21	Winter Temperature (degC): up to 24, independent control
Summer Temperature (DegC):	23	
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:		
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

Page 32 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

And that the ceiling type is a **HTM 60 type 5**, refer to Page 33 NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay - Bundle 43, Volume 5, Page 961**).

ADB	Room Design Character	B1811
Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1811	Single bedroom: Children/young people day care
Room Number:		**Revision Date:** 06/08/2007
Walls:	Surface Finish (HTM 56): 5 Moisture Resistance (HTM 56): N i.e. Normal humidity. Cleaning Routine (HTM 56): To manufacturers recommendations	
Floor:	Surface Finish (HTM 61): 3 i.e. Hard, impervious, jointless, smooth Cleaning Routine (HTM 61): To manufacturers recommendations	
Ceiling:	Surface Finish (HTM 60): 5 i.e. Imperforate Moisture Resistance (HTM 60): N i.e. Normal Humidity Cleaning Routine (HTM 60): To manufacturers recommendations	
Doorsets:	(HTM 58) Two sets of doors: 1x 1500mm, one & a half leaf, half glazed, obscurable, lockable; bed access. 1x 1000mm, single leaf, plain flush, occupancy indicator, lockable, outside emergency release; wheelchair access. Door hinge protectors.	
Windows:	(HTM 55) Clear, solar control, privacy control. Window opening restrictors max 100mm, low level sill (a maximum of 600mm)	
Internal Glazing:	(HTM 57) Blinds for glazed screens	
Hatch:		
Notes:		

Page 33 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

<u>Gowning Lobby</u>

GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing. It can be noted on Page 22 NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay - Bundle 43, Volume 5, Page 961**) that the Exemplar ADB sheet notes state ‘Source and protective isolation. For ventilated lobby details see HBN Isolation facilities in acute settings’, and on page 159 that the lobby should have a ‘positive’ pressure relative to the adjoining space.

ADB	Room Data Sheet	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

Activities:	1) Clinical hand washing. 2) Dispensing disposable aprons. 3) Dispensing disposable gloves. 4) Disposal of clinical waste. 5) Disposal of non-clinical items.			
Personnel:	2 x Persons			
Planning Relationships:	Direct access to single bedroom.			
Space Data:	**Area (m²):**	6.00	**Height (mm):**	2,700
Notes:	Source and protective isolation. For ventilated lobby details see HBN Isolation facilities in acute settings. The use of personal protective equipment (PPE) will be determined by local infection control policy.			

Page 158 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

ADB	Room Environmental Data	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	20	
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:	POS	
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

Page 159 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

And that the ceiling type is noted as **HTM 60 type 3**. With reference to HTM60 table 1 and table 2 a Type 3 ceiling has multiple options; however, we traditionally use either a jointless plasterboard membrane with concealed grid or a jointed membrane with a concealed grid.

ADB	Room Design Character	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

Walls:	Surface Finish (HTM 56): 3 i.e. Impervious, jointless, smooth Moisture Resistance (HTM 56): N i.e. Normal humidity. Cleaning Routine (HTM 56): To manufacturers recommendations
Floor:	Surface Finish (HTM 61): 3: Hard, impervious, jointless, smooth Cleaning Routine (HTM 61): To manufacturers recommendations
Ceiling:	Surface Finish (HTM 60): 3:Smooth, imperforate Moisture Resistance (HTM 60): N:Normal humidity. Cleaning Routine (HTM 60): To manufacturers recommendations Ceiling to be sealed and solid.
Doorsets:	(HTM 58) Two sets of doors: each- 1500mm, one and half leaf, plain flush
Windows:	(HTM 55) N/A
Internal Glazing:	(HTM 57) Clear with privacy control

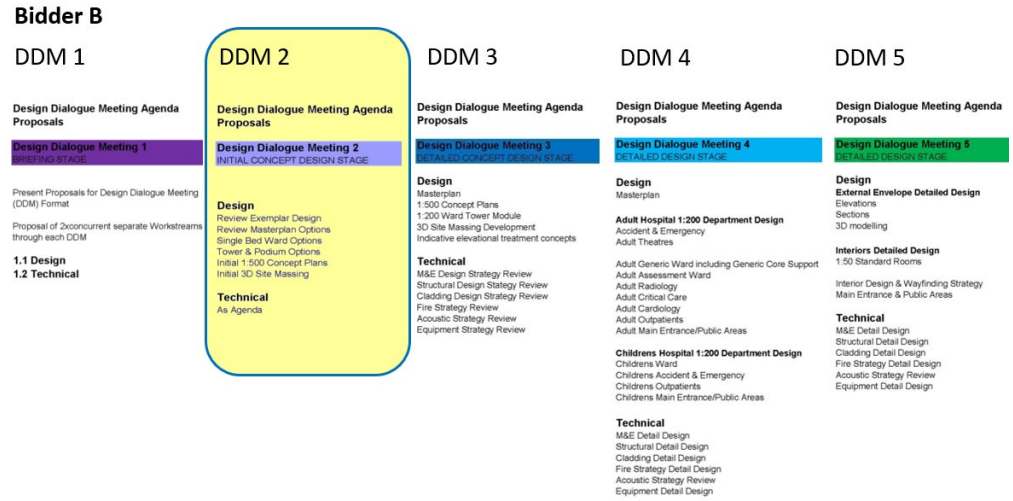
Page 160 **A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**

2.7 Competitive Dialogue Meetings

The three shortlisted Bidders were invited to attend originally 5 Design Dialogue Meetings (DDM). These ran from April 2009 until July/August 2009. The NA-IBI strategy was to provide a clear Meeting Framework Structure from the outset, demonstrating a 'Road Map' of the accelerated design process and what would be presented during the client dialogue meetings. The structure was also built around the Bid Programme, to initially review the Exemplar Design; to assess and test the Board's appetite for alternative design approaches by producing a number of different options, which included breaking the single dominant adult ward tower into two lower blocks. It was clear that the NHS Board were keen to maintain the Exemplar Design main principles, which was essentially a single ward tower and podium for the Adult Hospital, and a separate but linked Children's Hospital. Therefore, we focused on refining and improving the Exemplar Design, initially focusing on the repeatable Adult Ward Tower, including reviewing the single bedroom/ensuite options through a series of pros and cons diagrams.

Exemplar Design Review Summary

NA-IBI and the Multiplex Design Team completed a full review of the exemplar design and discussed the site masterplan, building design, building massing and clinical issues and improvements which could be made during the Design Dialogue Meetings (DDM). The initial site, architectural and clinical review of the exemplar design was presented during design dialogue meeting 2 (DDM2). Refer to page 2 - DDM_02_NA_Presentation_200509 for the Proposed Meeting Framework Structure (**A52701456 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 2 – undated – Bundle 43, Volume 4, Page 775**)



Proposed Meeting Framework Structure (**A52701456 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 2 – undated – Bundle 43, Volume 4, Page 775**)

Adult Ward Tower Review

The single bedroom with the Healthcare Building Note (HBN) option for an outboard ensuite created a dominant aesthetic on the ward tower, adding additional surface area and cost to the façade, impacting the quality of daylight and views for the patient rooms, as well as presenting potential future access and maintenance issues. In addition, the orientation of the splayed ward wings created patient privacy issues with overlooking between two of the 4 wings.

Adult Critical Care Review

Both the Acute Assessment Unit and Critical Care departments were split with a clinical link corridor, which was not ideal for the flexibility for either department and impacted the clinical functionality by separating nursing staff and patients.

Children's Hospital Review

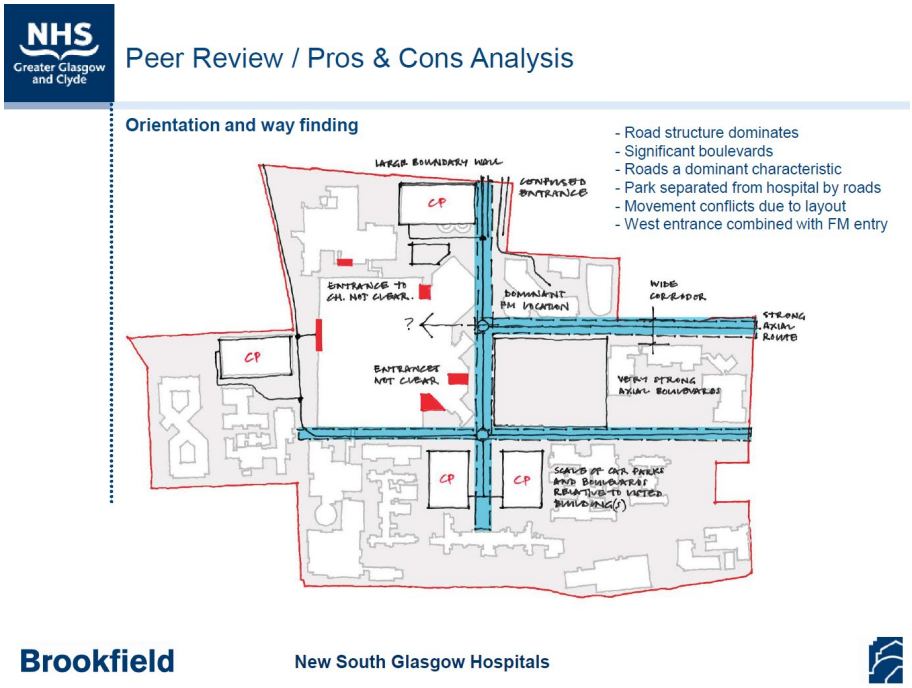
The exemplar design did not provide a clear and separate identity for the Children's Hospital, which was a requirement of the brief. In addition, the Children's Outpatient Departments (OPD) were split over multiple floors, which reduced the future flexibility of OPD. Other shared whole hospital departments, such as the Aseptic Suite, had migrated to the Children's

Hospital 'side', separating the Children's Day case unit from the Schiehallion Unit, i.e. Wards 2A & 2B – RHC. The Aseptic Suite is also a department that benefits from being internal due to the specialist ventilation and controlled environmental conditions required for the manufacturing processes.

It was clinically desirable to have 3 repeating generic wards for the level 3 children's inpatient wards, which was not achieved in the exemplar design, with one ward separated by a hospital street.

Public Realm Review

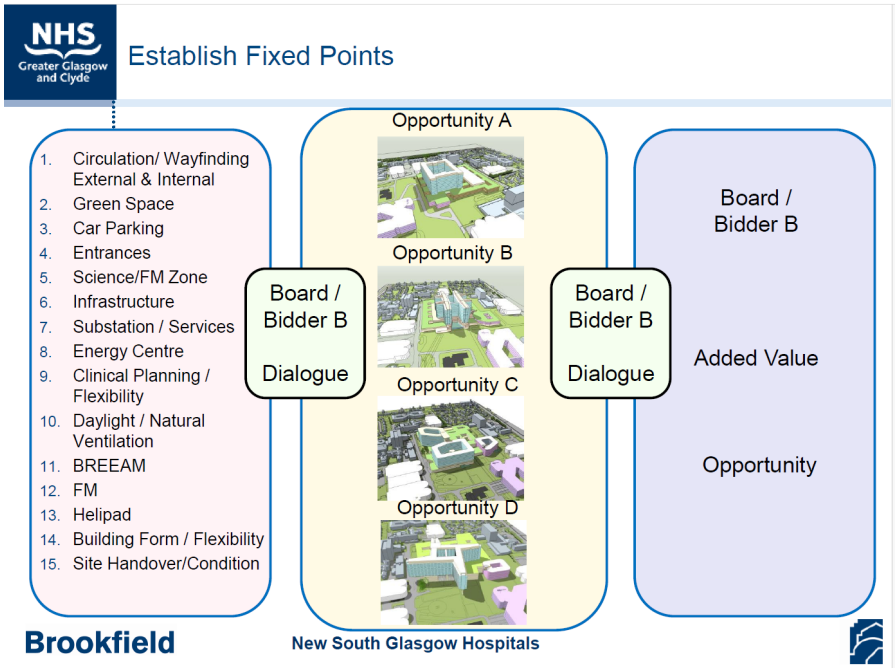
The exemplar design contained one long linear Atrium mall, connecting the Adult and Children's Hospitals. This was set-back and disassociated from the main public realm and drop-off area and resulted in a slightly confusing 3 main public entrances. Refer to Page 10 - DDM_02_NA_Presentation_200509 (**A52701456 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 2 – undated – Bundle 43, Volume 4, Page 783)** for an example diagram of the Public Realm Review.



DDM 02 Presentation **A52701456 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 2 – undated – Bundle 43, Volume 4, Page 783**

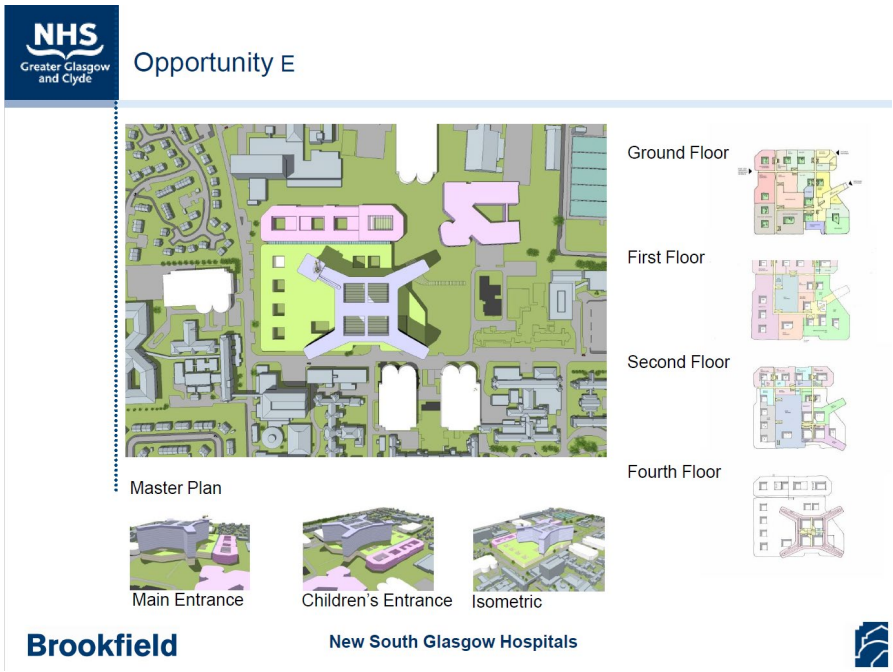
The improvements, or 'changes' proposed were identified as design opportunities which were presented through our structured approach to the

Competitive Dialogue process. The second DDM presentation (refer to page 6 DDM_02_NA_Presentation_200509) (**A52701456 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 2 – undated – Bundle 43, Volume 4, Page 779**) also captures the essence of the opportunities identified and developed during the design dialogue meetings.



DDM 02 Presentation – Review Design Opportunities **A52701456 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 2 – undated – Bundle 43, Volume 4, Page 779**

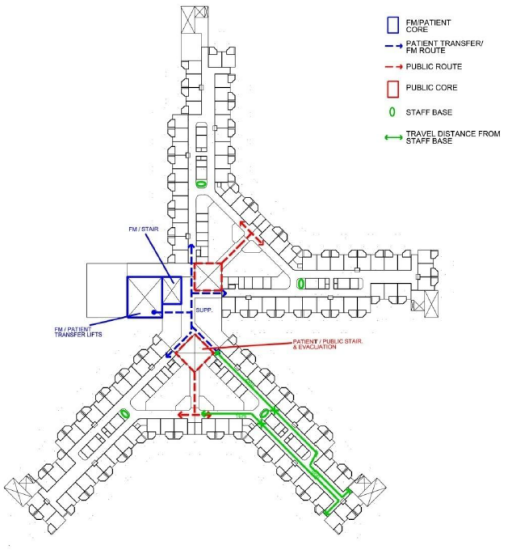
Elements of the design approach in Opportunity C, with its lower scale sensitivity and identity for the children's hospital, and Opportunity D, with the repeating adult ward tower wings were positively received during DDM 02; following this feedback further design options were developed to combine them into a more refined design Opportunity E, which can be seen in the diagram on page 65 DDM_03_NA_Presentation_100609 – Opportunity E (**A52701464 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 3 – undated – Bundle 43, Volume 4, Page 945).**



DDM 03 Presentation – Opportunity E (**A52701464 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 3 – undated – Bundle 43, Volume 4, Page 945).**

Adult Ward Tower Design Development

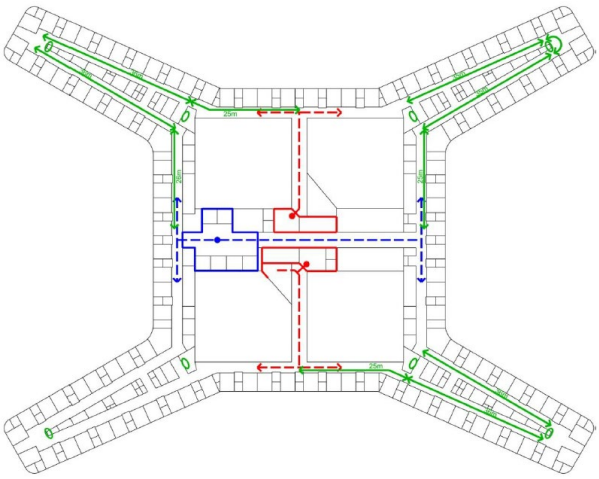
Opportunity E rotated and simplified the Exemplar ward tower wings, initially maintaining a similar circulation/core strategy. The Exemplar Ward Tower circulation analysis can be seen in Page 68 DDM_03_NA_Presentation_100609 (**A52701464 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 3 – undated – Bundle 43, Volume 4, Page 948**).



Exemplar Design

DDM 03 Presentation – Exemplar Ward Tower (**A52701464 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 3 – undated – Bundle 43, Volume 4, Page 948**)

The Opportunity E proposed design, which can be seen on page 69 of DDM_03_NA_Presentation_100609 (**A52701464 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 3 – undated – Bundle 43, Volume 4, Page 949**), provided four identical ward wings, with the ability to flex the bedrooms across each 28 bedded ward unit, which could assist in nursing different numbers of bedroom clusters, e.g. increase to 32 beds, or decrease to 24 beds. The feedback was positive on this design approach for the Adult Wards, but the Children's Ward design presented was seen as conservative in comparison, and we were challenged to provide a ward with a similar flexible design approach.

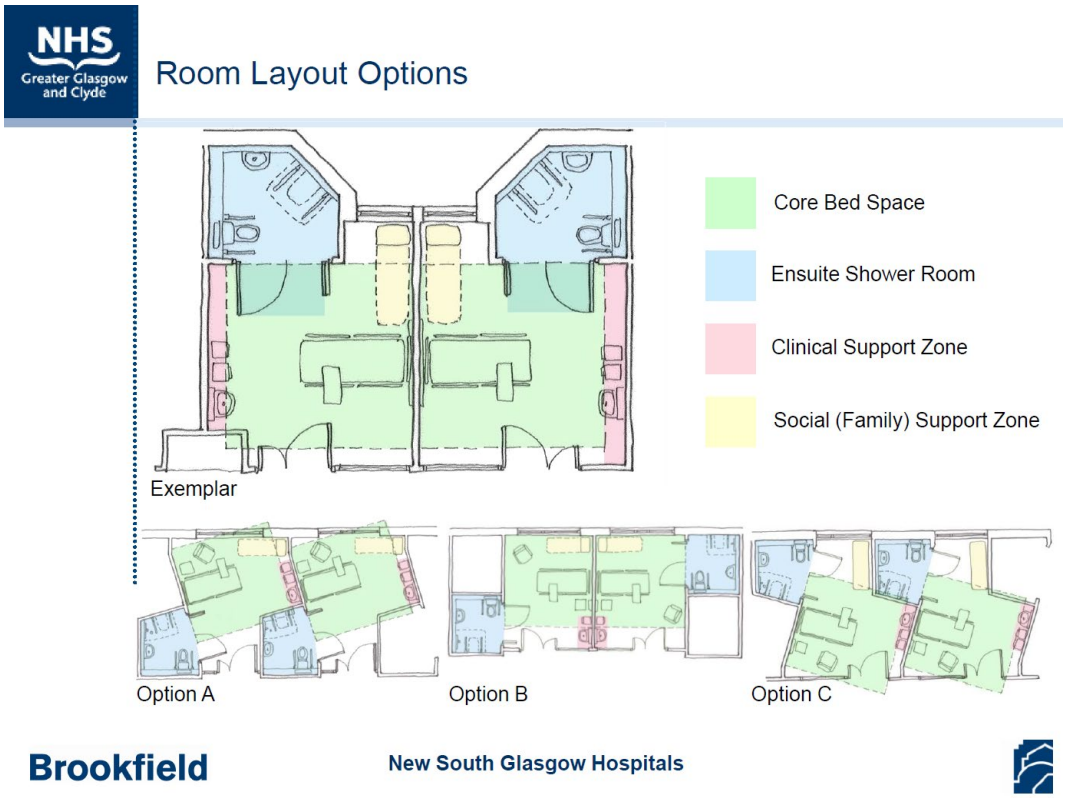


Opportunity 'E'

DDM 03 Presentation – Opportunity 'E' Ward Tower (**A52701464 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 3 – undated – Bundle 43, Volume 4, Page 949**)

The single bedroom exemplar design with an outboard ensuite was agreed to be changed to the Option B room layout with interstitial ensuites, providing more regular-shaped rooms, with improved daylighting and views. The outboard ensuite in the Exemplar design impacted the quality of daylight and views for the patient rooms; creating more irregular shaped rooms that 'stuck out' of the façade. The Single Room Layout Room Options can be seen on

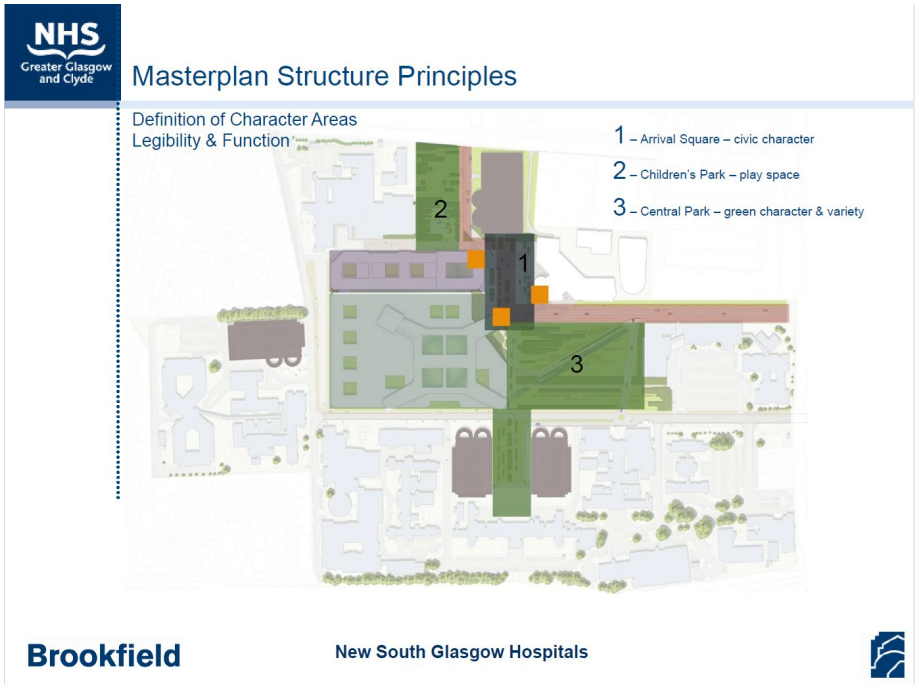
page 17 of DDM_03_NA_Presentation_10060 **(A52701464 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 3 – undated – Bundle 43, Volume 4, Page 897).**



page 17 DDM 03 Presentation – Single Patient Room Layouts **(A52701464 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 3 – undated – Bundle 43, Volume 4, Page 897)**

Masterplan Design Principles

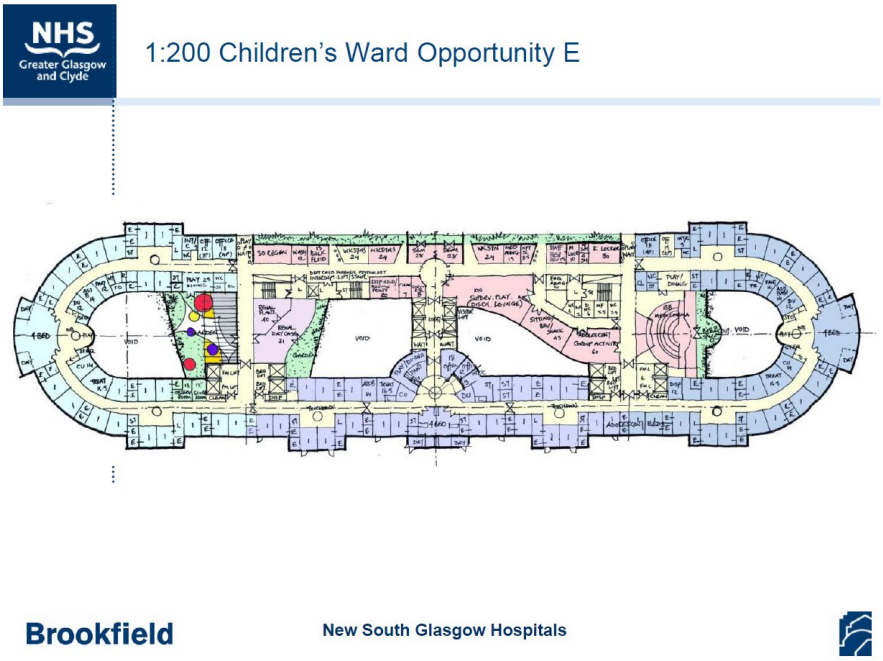
The public realm had improved legibility, with three clear functional areas; the Arrival Square; the Central Park and the Children's Park. The three main entrances to the Adult Hospital, Children's Hospital and Laboratory Building were each visible and clear for the public from the Arrival Square. And the Children's Hospital identity was starting to evolve, with direct access to the Children's Park and a visible separation from the Adult Hospital. The proposed Masterplan Public Realm Principles can be seen on page 25 of DDM_03_NA_Presentation_10060 **(A52701464 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 3 – undated – Bundle 43, Volume 4, Page 907).**



page 25 DDM 03 Presentation – Opportunity E – Public Realm Principles **(A52701464 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 3 – undated – Bundle 43, Volume 4, Page 907)**

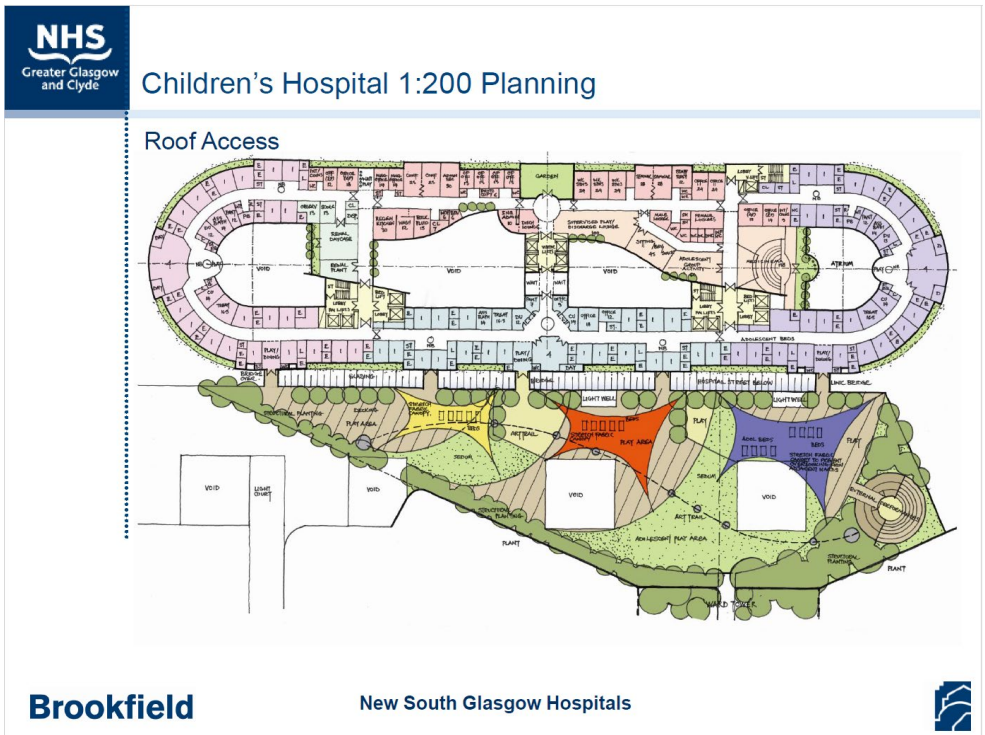
Children's Hospital Design Development

The focus on DDM 04 was on resolving the Children's Hospital design, in particular to address the feedback on the ward. This was when and why the distinctive lozenge shape was introduced. The circulation racetrack allowed the 3 wards to flex, with the ends of each ward forming the logical locations for the lift circulation cores. The initial Children's Ward Concept can be seen on page 31 of DDM_04_NA_Presentation_230609 Final NM (**Please refer to Bundle 17, Document 52, Page 2153**).



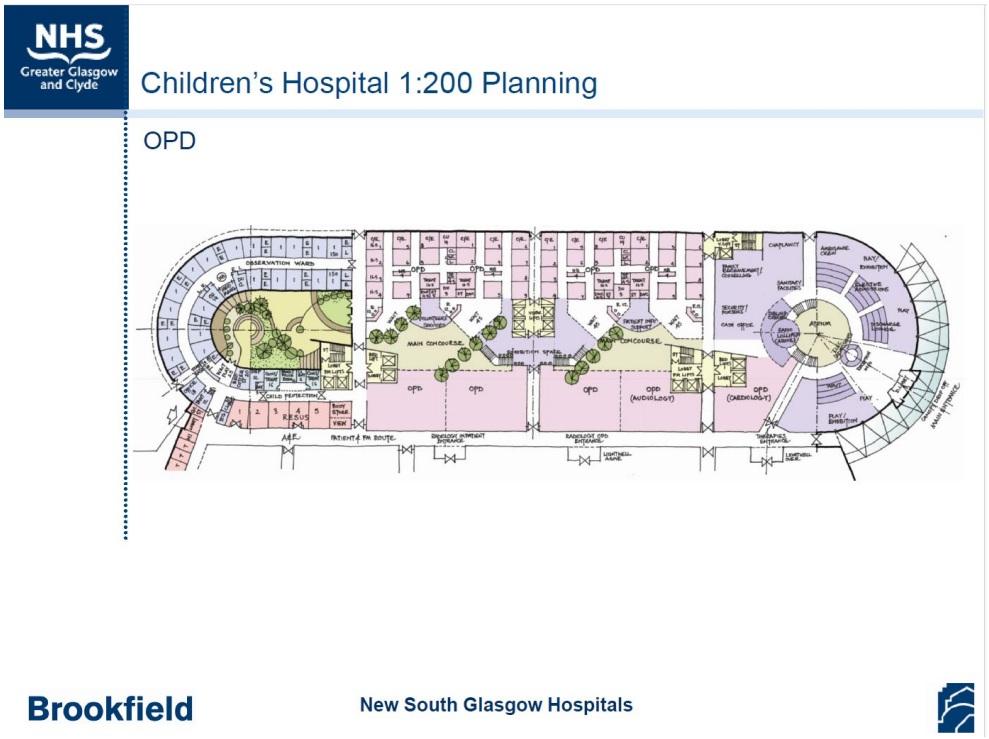
page 31 DDM 04 Presentation – Children's Ward Concept (**Bundle 17, Document 52, Page 2153**)

Further refinement of the ward concept took place between DDM4 and DDM5, which included the initial concepts for the children's rooftop terrace/gardens, and medicinema. The updated Children's Ward Concept with Garden can be seen on page 16 of DDM_05_NA_Presentation_070709 Final NM (**A52701459 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 5 – undated – Bundle 43, Volume 4, Page 847).**



page 16 DDM 05 Presentation - Children's Ward Concept with Garden (**A52701459 – Bidder B New South Glasgow Hospitals Design Dialogue Meeting 5 – undated – Bundle 43, Volume 4, Page 847)**

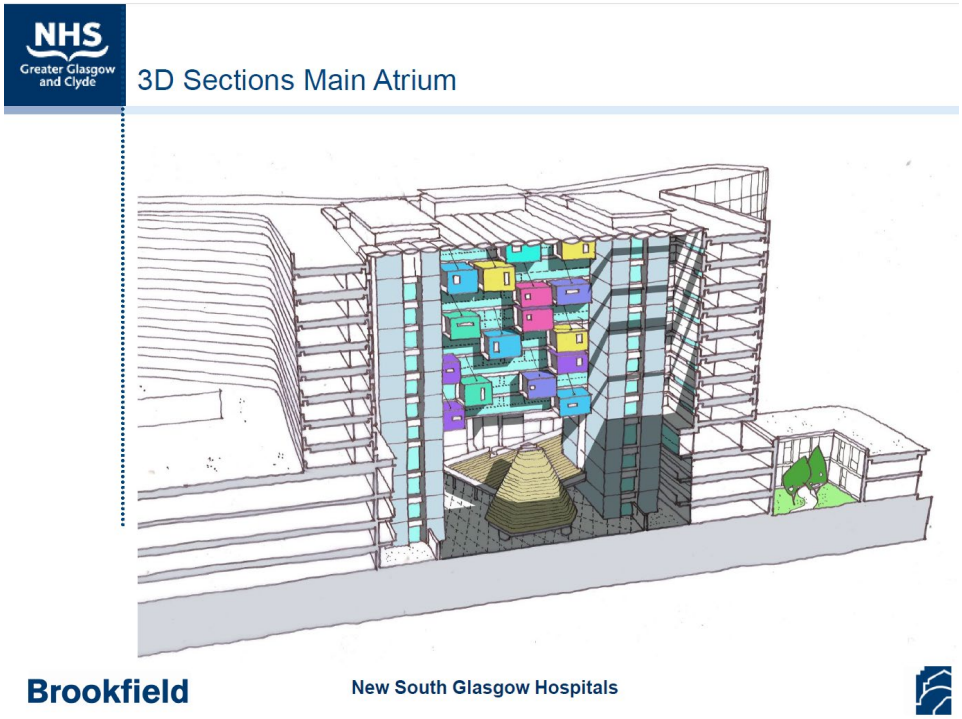
In addition, the Children's OPD evolved into a series of more flexible clinic clusters wrapped around a central dedicated Children's atrium; this ended in an external landscaped courtyard for the Children's Sanctuary. The Children's OPD Concept can be seen on page 17 of DDM_05_NA_Presentation_070709 Final NM (**A52701459 - Bidder B New South Glasgow Hospitals Design Dialogue Meeting 5 – undated – Bundle 43, Volume 4, Page 848).**



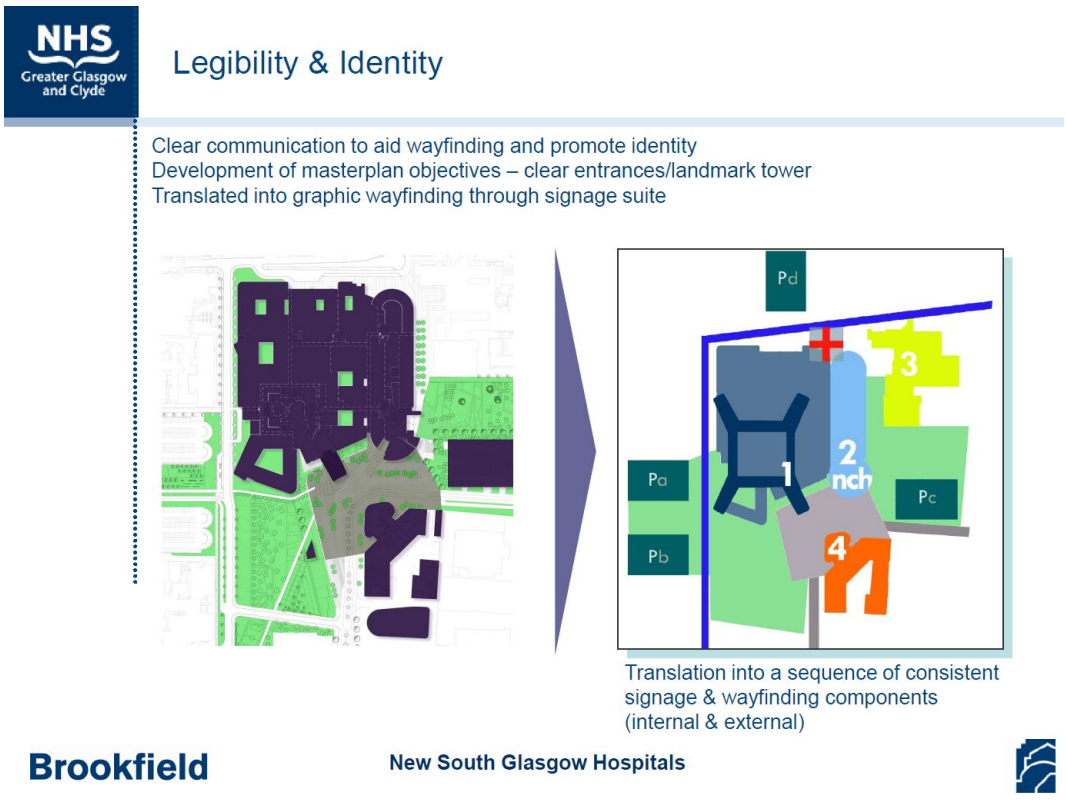
DDM 05 Presentation - Children's OPD Concept (**A52701459 - Bidder B New South Glasgow Hospitals Design Dialogue Meeting 5 – undated – Bundle 43, Volume 4, Page 848)**

The Adult's Atrium Concept also evolved, with the space opening up following a review of the locations for the main ward tower circulation cores. All the cores moved to the periphery of the atrium, allowing the omission of the public link bridge through the atrium. The central FM link bridge developed into the pod concept, providing the vertical atrium space with its now familiar design feature; refer to page 20 DDM_05_NA_Presentation_070709 Final NM

(A52701459 - Bidder B New South Glasgow Hospitals Design Dialogue Meeting 5 – undated – Bundle 43, Volume 4, Page 851).



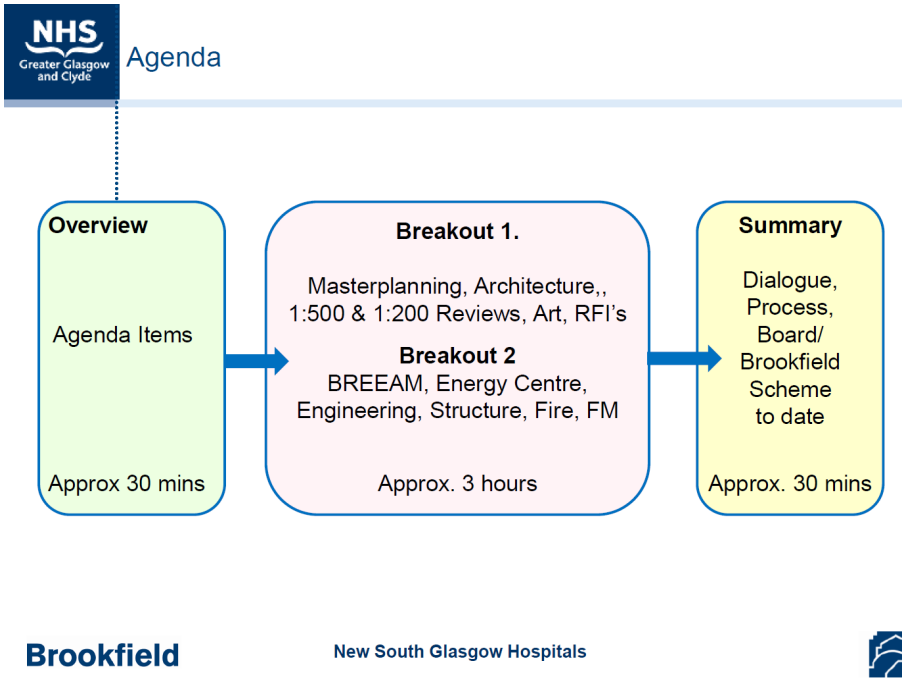
DDM 05 Presentation – Adult Atrium Concept **(A52701459 - Bidder B New South Glasgow Hospitals Design Dialogue Meeting 5 – undated – Bundle 43, Volume 4, Page 851).**



DDM 06 Presentation – Masterplan

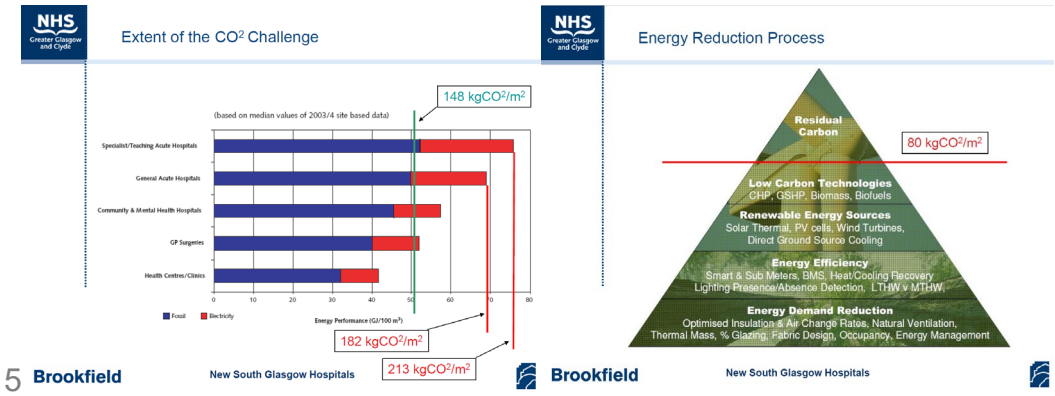
Technical Design Reviews

One further meeting, DDM6 (**A52701637 – Bidder B - Board Presentation Bundle, Bundle 43, Volume 5 – See Paper Apart)** was added in September, which was intended to be a final presentation of the design prior to the bid submission. At this stage there were more intensive technical reviews in the Engineering Breakout sessions to address the Technical RFIs; NA-IBI were only in attendance at the Breakout Session 1, with the engineering team (ZBP, Mercury, WSP and Multiplex) attending Breakout Session 2 which took place concurrently.



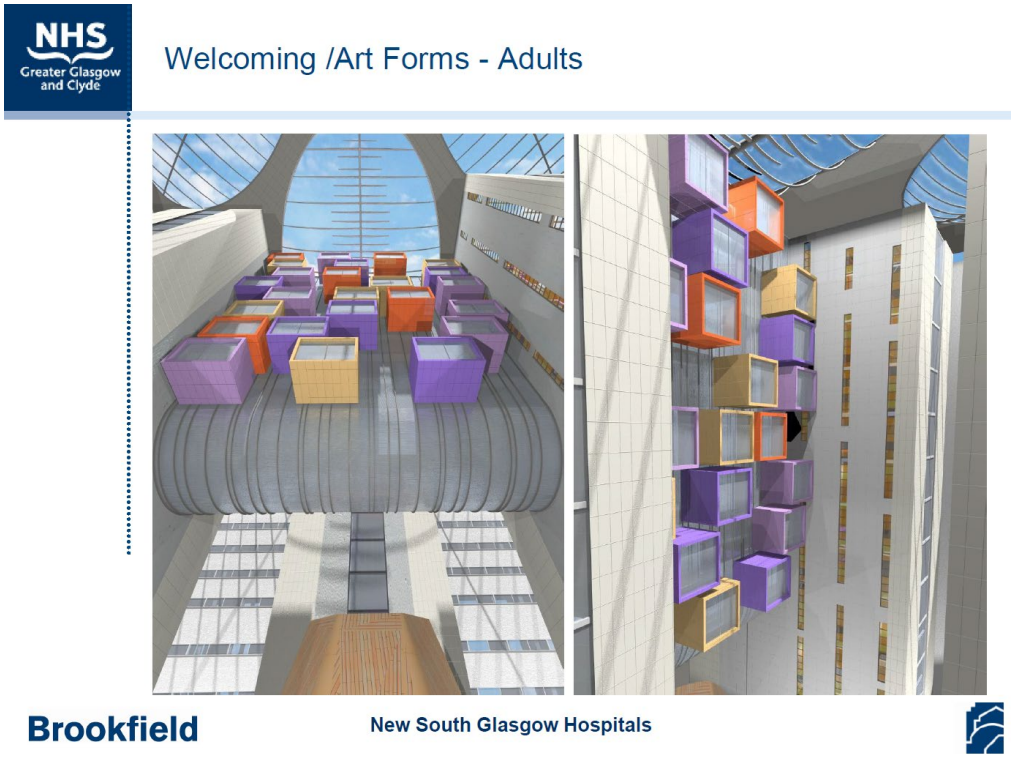
DDM 06 Presentation – Agenda (**A52701637 – Bidder B - Board Presentation Bundle, Bundle 43, Volume 5 – See Paper Apart)**

The technical breakout session included discussions on the detail of the low carbon challenge, which was reviewed with comparative data. To reduce the carbon to the 80kg CO2/m2 an energy reduction process was completed. Whilst NA-IBI were not in attendance in the meeting, and thus do not have records of the feedback, this would have been recorded by Multiplex and the NHS team. Refer to page 210 and page 211 Board_Presentation_04-08-09[1] **(A52701637 – Bidder B - Board Presentation Bundle, Bundle 43, Volume 5 – See Paper Apart)** for slides from the M&E breakout session demonstrating the Low Carbon Challenge.



DDM 06 Presentation – Low Carbon Challenge **(A52701637 – Bidder B - Board Presentation Bundle, Bundle 43, Volume 5 – See Paper Apart)**

The Adult's atrium design concept progressed into a 3-dimensional concept model, creating a 'built' piece of art. The evolved Final Adult Atrium Concept can be seen on page 99 of Board_Presentation_04-08-09[1] **(A52701637 – Bidder B - Board Presentation Bundle, Bundle 43, Volume 5 – See Paper Apart).**



DDM 06 Presentation – Final Adult Atrium Concept **(A52701637 – Bidder B - Board Presentation Bundle, Bundle 43, Volume 5 – See Paper Apart)**

2.8 BID SUBMISSION AND COMPLIANCE

A Post Tender Submission Presentation to support the evaluation of the 3 bidders' proposals was requested by GGC NHS. This was stipulated to be focused on Design and Compliance, i.e. present in summary how the bid submission responded to the ITPD requirements. This was separated into Planning and Delivery; and a Summary of Key Benefits and Added Value. The introduction section contains the Bid Stage – Tracked Scheme Development slide on page 2 Post Submission Presentation 2 **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**, which demonstrates the completion of the bid dialogue meeting process and includes design images of the evolving design from the **Exemplar** to the **Contractor's Proposal**.

Post Submission Presentation – Introduction **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**

The final Post Submission Presentation was structured to be a demonstration of the intent to comply with the Client Brief, albeit with an alternative approach to the exemplar design, which had been developed during the dialogue meetings.

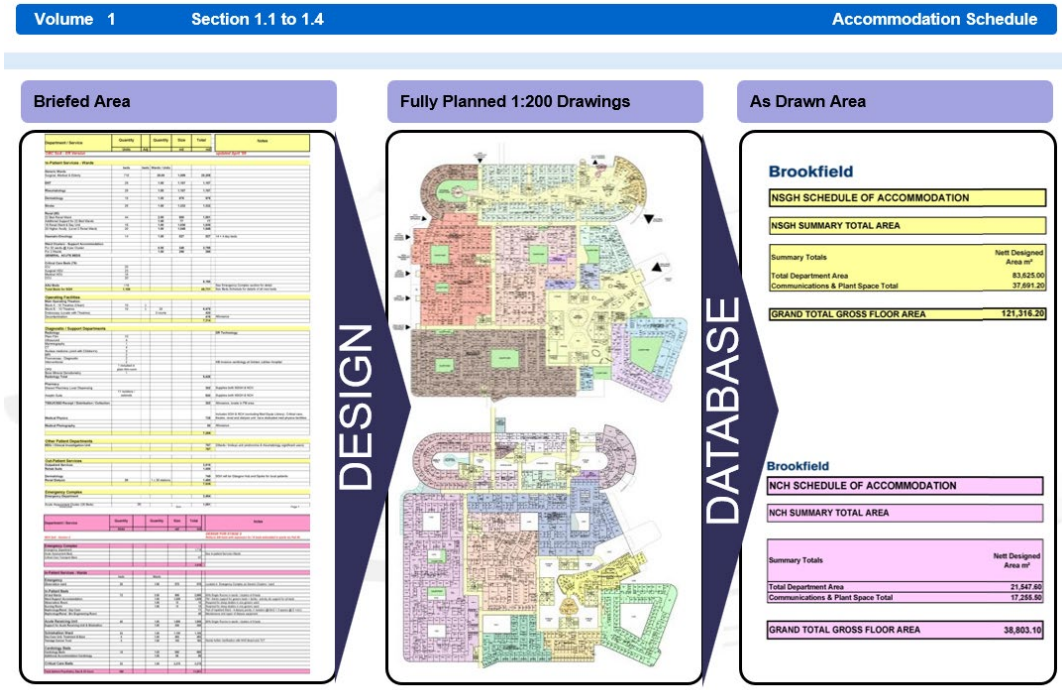
Final Concept

The Building Concept (page 30 - Post Submission Presentation 2) **(A52701551 – Bundle 43, Volume 5 – See Paper Apart),** consisted of the 'Beacon' ward tower, sat on the podium 'Dock' with adjacent the children's hospital 'Vessel'.

Building Concept **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**

Design Validation

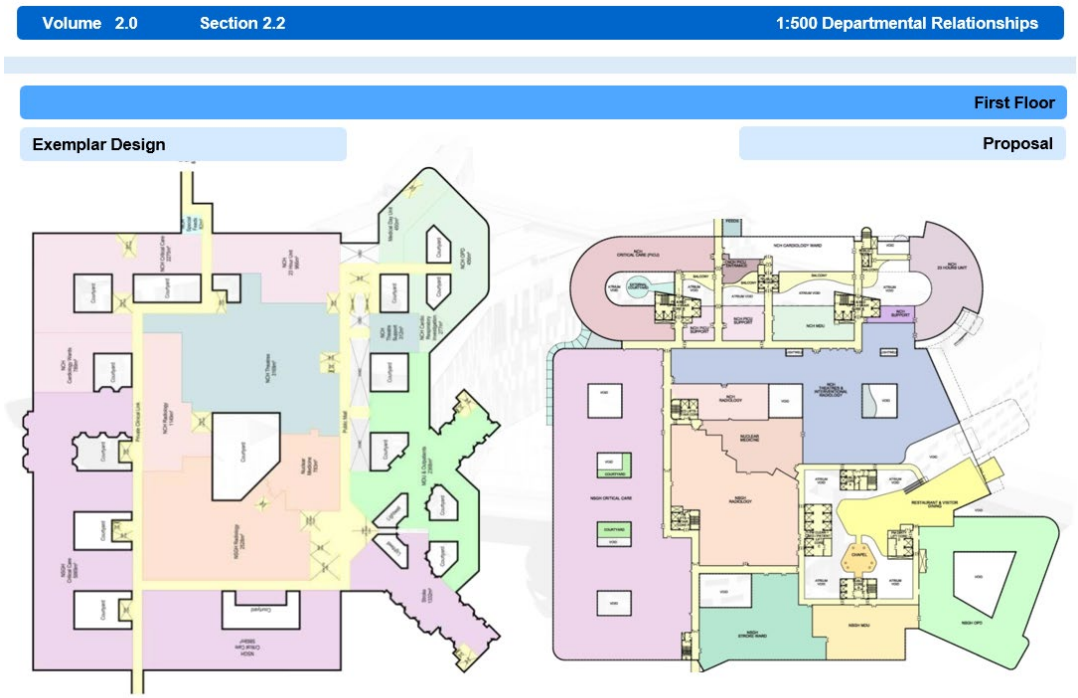
The approach to design ALL the departments, rather than only the 11 key departments, allowed the validation of the briefed areas in the Employer's Requirements, and de-risked the Bid Cost Plan; the diagram on page 5 - Post Submission Presentation 2 **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)** demonstrated the Design validated against the SoA Database.



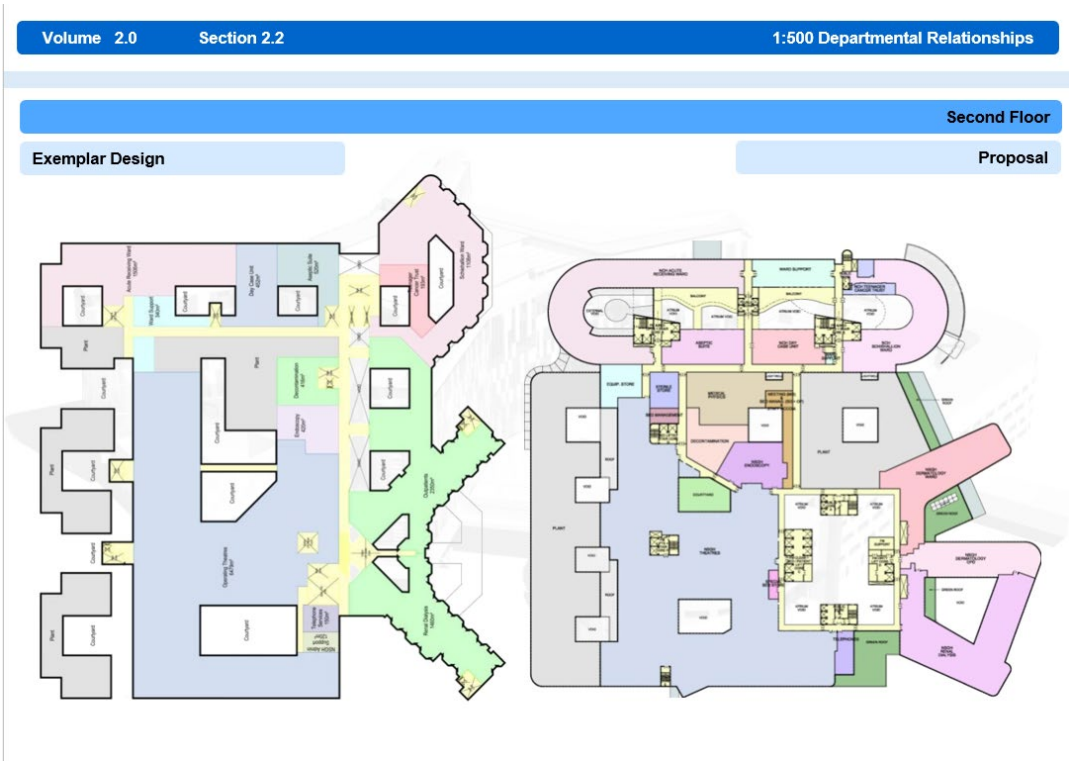
page 5 - Post Submission Presentation 2 **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**

A series of Exemplar v Proposed Design Comparison diagrams demonstrated that the proposed design followed the main department adjacencies stipulated within the exemplar design, however within a different building concept. These can be seen from page 8 to 12 of Post Submission Presentation 2 **(A52701551 – Bundle 43, Volume 5 – See Paper Apart).**

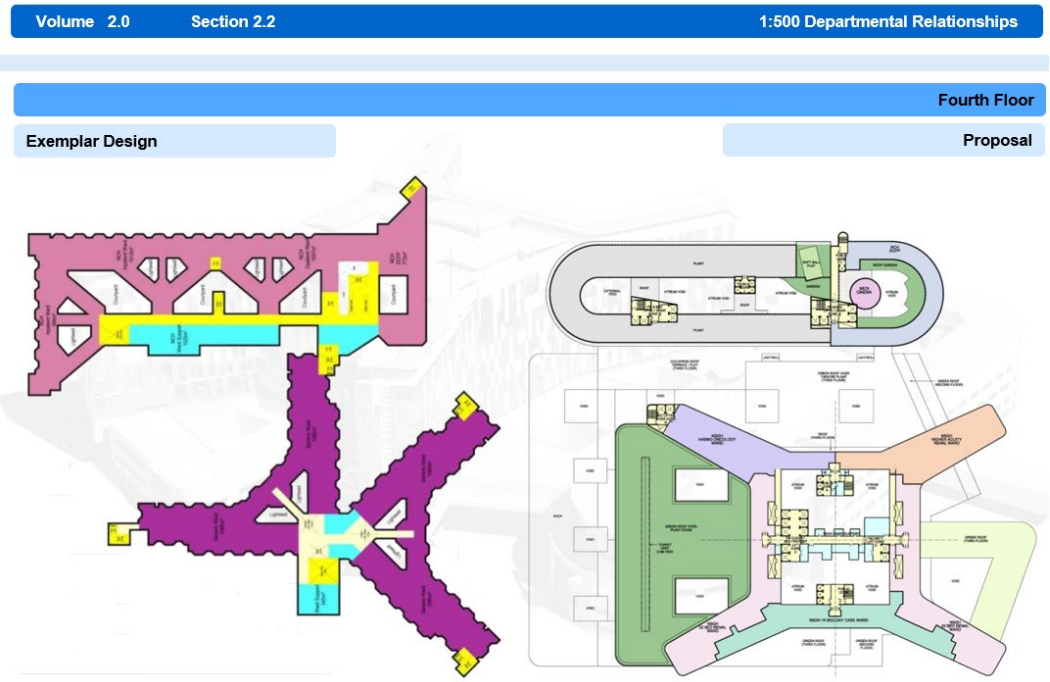
Ground Floor – Exemplar v Proposed Design Comparison **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**



First Floor – Exemplar v Proposed Design Comparison **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**

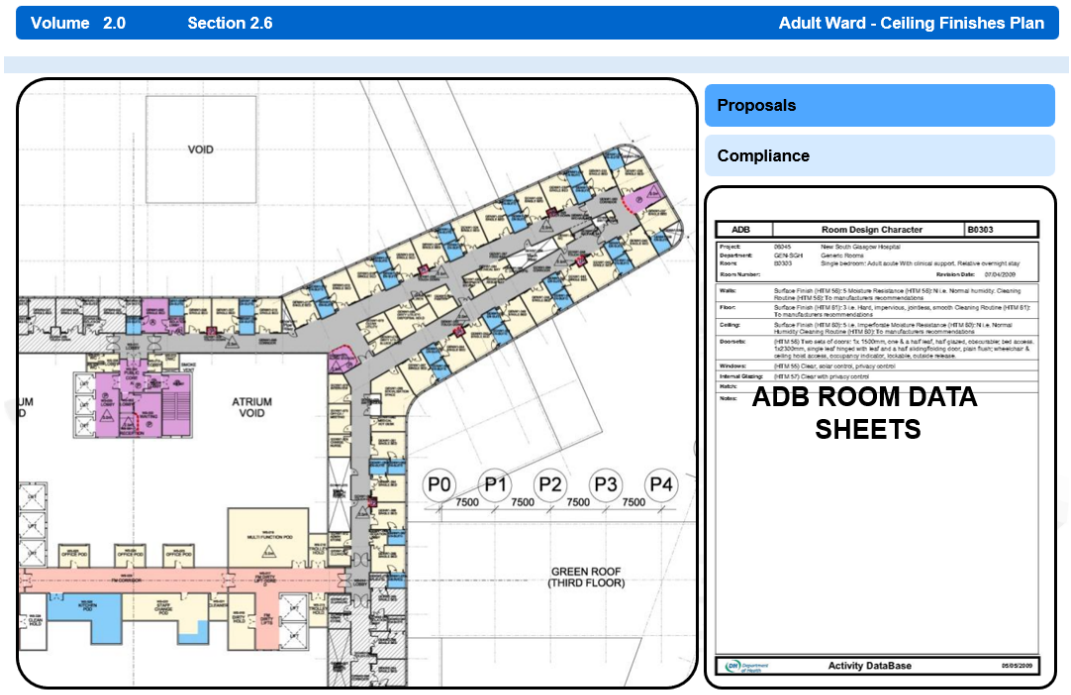


Second Floor – Exemplar v Proposed Design Comparison **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**

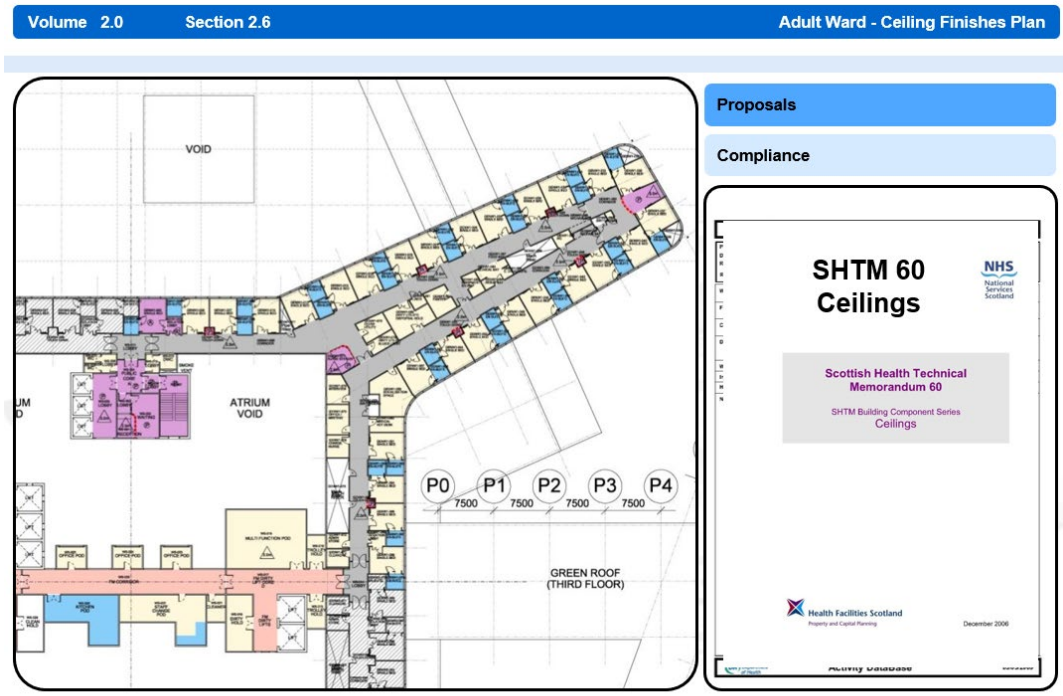


Fourth Floor – Exemplar v Proposed Design Comparison **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**

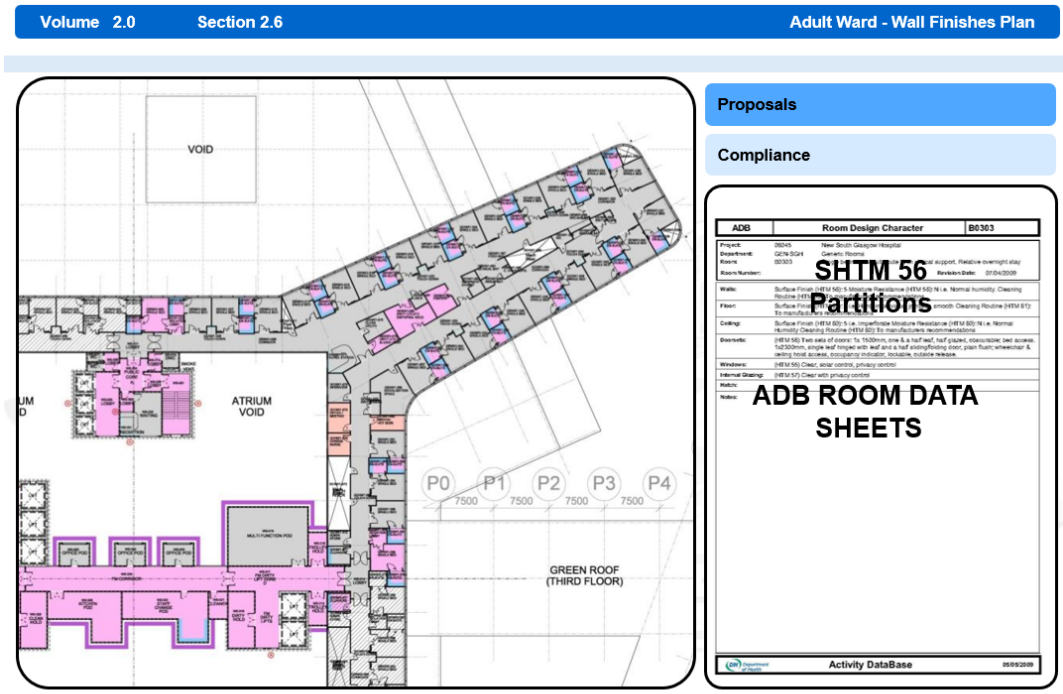
In addition, the compliance with both the ADB Room Data Sheets and SHTMs were demonstrated with a series of slides containing the Typical Generic Ward proposed Ceiling, Wall and Floor Finishes. These can be seen on page 18,19 and 20 of the Post Submission Presentation 2 **(A52701551 – Bundle 43, Volume 5 – See Paper Apart).**



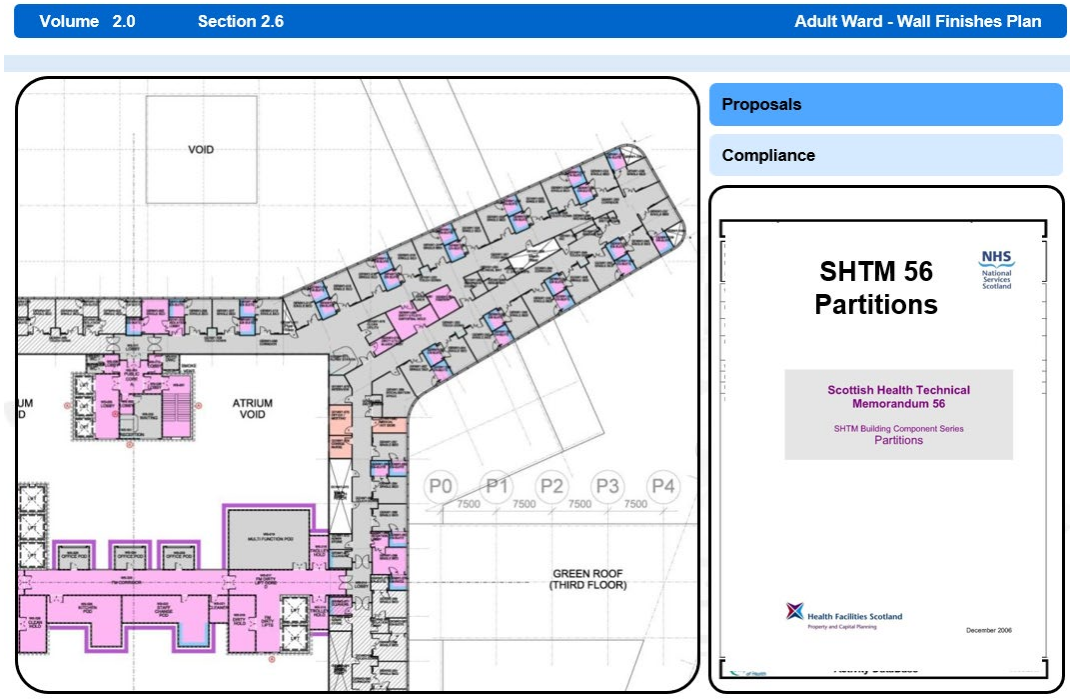
Typical Ward – Ceiling ADB Compliance **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**



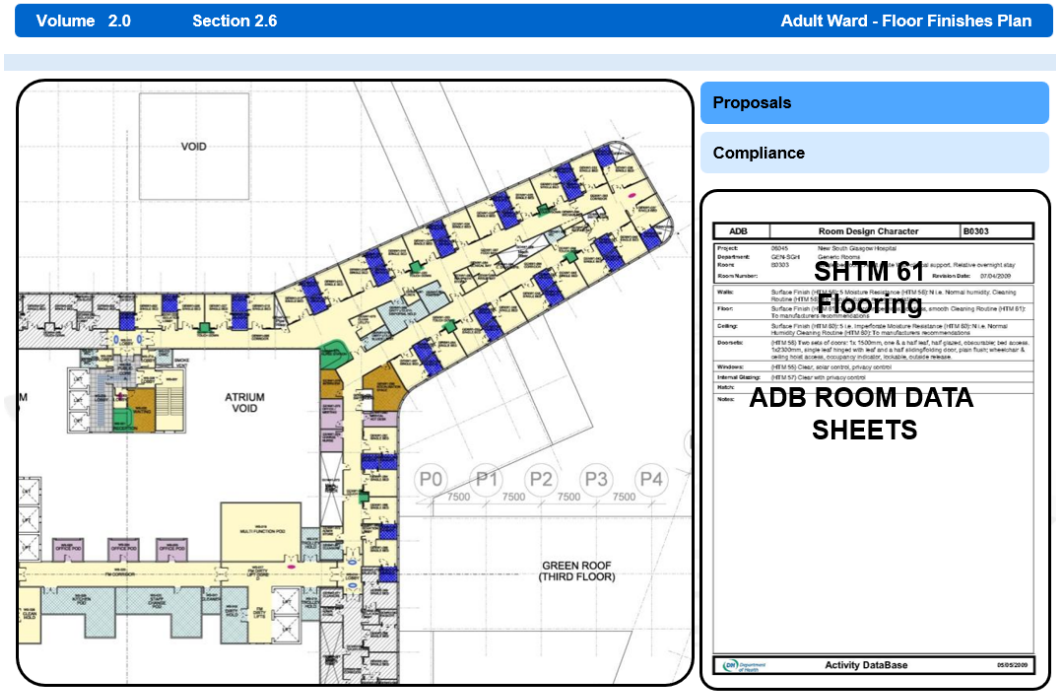
Typical Ward – Ceiling SHTM Compliance **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**



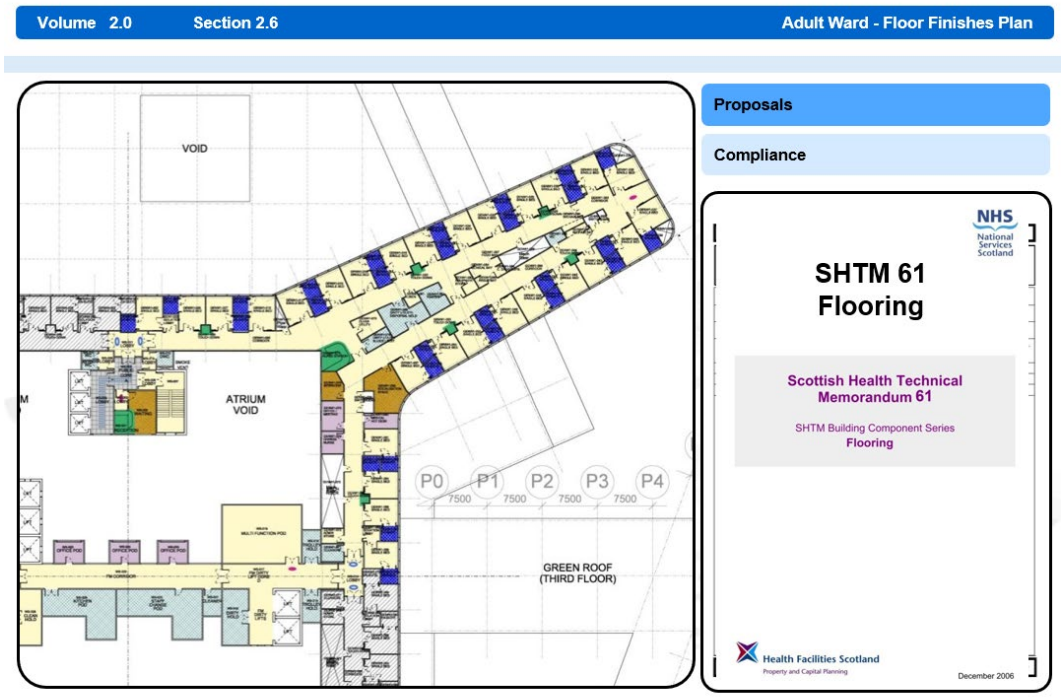
Typical Ward – Wall Finishes ADB Compliance **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**



Post Submission Presentation – Typical Ward – Wall Finishes SHTM Compliance **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**



Typical Ward – Floor Finishes ADB Compliance **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**



Typical Ward – Floor Finishes SHTM Compliance **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**

2.9 BID CLARIFICATIONS AND RFIS

BIW was the online collaboration platform adopted during the Bid Stage, which was set-up and operated by Gleeds on behalf of GGC NHS. The ITPD documents, and addendums, were shared to the bidders on this platform. In addition, bidders were to raise any RFIs formally on the platform, using the APPENDIX D – Request for Information Pro-Forma**.**

The RFIs raised during the bid stage, and responses, were collated in the RFI Log. The RFI Log concluded with a final agreed position for inclusion in the Main Contract.

2.10 Following the assessment and scoring of the Bidder's Proposals Multiplex were announced as Preferred Bidder in November 2009. The Final Project Vision is captured within the 3D visualisation on page 1 of Post Submission Presentation 2 **(A52701551 – Bundle 43, Volume 5 – See Paper Apart).**

Final Project Vision **(A52701551 – Bundle 43, Volume 5 – See Paper Apart)**

3. PROJECT CONTRACT BIBLE (2009)

3.1 The Contract, including the final agreed 'Project Bible' was received by Nightingales on or around 26 March 2010.

3.2 The Project Bible contained the Building Contract, Employers Requirements (ERs) & Logs and various related schedules and appendices for Stage 1 and Stage 2.

Effectively, this consisted of Multiplex's Contractor Bid Proposals, including IBI's drawings and outline specifications, as well as the agreed contractual position on the ER's and various Logs.

For Multiplex, this was the Stage 1 and Stage 2 Building Contract. Stage 1 (the Laboratory Construction) was completed with the GGHB novated Design Team.

For IBI, this was relevant only for the Stage 2 Building Contract (i.e. the detailed design of the Adult and Children's Hospitals to FBC).

3.3 The BIW Log

The BIW Log **(A52701631 – The BIW Log 2010 Bundle 43, Volume 5, Page 750)** confirmed whether the Contactor's Tender Proposals or the GGC Board Employer's Requirements were to take precedent.

‘*Brookfield agree with Board position that Clinical Output Specs should remain as being the core ER on the basis that the Board confirm that they accept the Accommodation Schedules included within the Bid Submission Volume 1 can satisfy the Clinical Output Specifications.’

The Contractor’s 1:500 Department Adjacency Plans replaced the Exemplar Design as the agreed Contractual position.

The Contactor’s 1:200 Department Layout Plans replaced the Exemplar Design as the agreed Contractual position subject to the attached commentary "4 Departments Drawing Note".

The remaining Department Layout Plans were agreed as acceptable to proceed to presentation to the user groups.

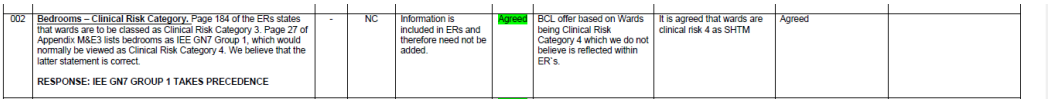
The Exemplar NSGACL-Generic ADB Room Layouts **(A52701465 – NSGACL – Generic ADB Room Layouts – undated – Bundle 43, Volume 4, Page 957)** were replaced with the Contractor Proposed 1:50 Generic Room Layouts as the agreed Contractual position. The Contractor proposals co-ordinated with the 1:200 Department Layout Plans, however both sets of drawings were subject to review during the Stage 2 stakeholder process, including the clinical user group meetings.

3.4 The RFI Log

The RFI Log captured the RFIs raised during the Competitive Dialogue Stage, and the agreed contractual position on the responses.

Of note it is confirmed that the items agreed in the RFI Log **(Please refer to Bundle 17, Document 16, Pages 866, 872, 896, 907 and 915)** take precedence over the M&E drawings where relevant.

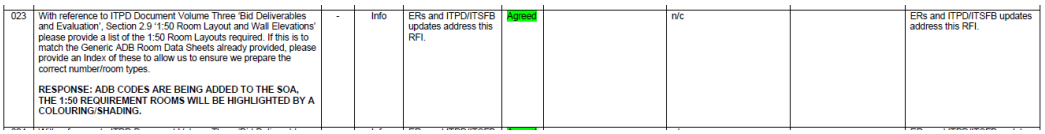
The Wards are agreed as clinical risk 4;



002	Bedrooms – Clinical Risk Category: Page 184 of the ERs states that wards are to be classed as Clinical Risk Category 3. Page 27 of Appendix M&E3 lists bedrooms as IEE GN7 Group 1, which would normally be viewed as Clinical Risk Category 4. We believe that the latter statement is correct. **RESPONSE: IEE GN7 GROUP 1 TAKES PRECEDENCE**	-	NC	Information is included in ERs and therefore need not be added.	Agreed	BCL offer based on Wards being Clinical Risk Category 4 which we do not believe is reflected within ER's.	It is agreed that wards are clinical risk 4 as SHTM	Agreed	

refer to RFI no.2 – p3 RFI Log. **(Please refer to Bundle 17, Document 16, Page 866)**

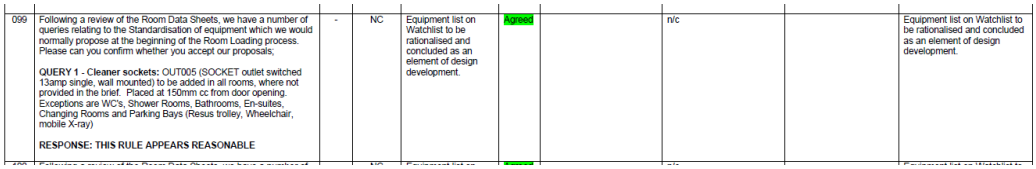
GGC NHS acknowledges that it will confirm the ADB briefing room codes, in this instance for the ITPD submission; refer to RFI no.023 – p7 RFI Log.



023	With reference to ITPD Document Volume Three 'Bid Deliverables and Evaluation', Section 2.9 '1:50 Room Layout and Wall Elevations' please provide a list of the 1:50 Room Layouts required. If this is to match the Generic ADB Room Data Sheets already provided, please provide an Index of these to allow us to ensure we prepare the correct number/room types. **RESPONSE: ADB CODES ARE BEING ADDED TO THE SOA. THE 1:50 REQUIREMENT ROOMS WILL BE HIGHLIGHTED BY A COLOURING/SHADING.**	-	Info	ERs and ITPD/ITSFB updates address this RFI.	Agreed		n/c		ERs and ITPD/ITSFB updates address this RFI.

RFI no.023 – p7 RFI Log **(Please refer to Bundle 17, Document 16, Page 872)**

A series of RFIs were raised to confirm the NA-IBI initial equipment standardization proposals were to be included in the 1:50 room layouts following a review of the Room Data Sheets; refer to RFI no.099 – p31 RFI Log.



099	Following a review of the Room Data Sheets, we have a number of queries relating to the Standardisation of equipment which we would normally propose at the beginning of the Room Loading process. Please can you confirm whether you accept our proposals; **QUERY 1 - Cleaner sockets:** OUT005 (SOCKET outlet switched 13amp single, wall mounted) to be added in all rooms, where not provided in the brief. Placed at 150mm cc from door opening. Exceptions are WC's, Shower Rooms, Bathrooms, En-suites, Changing Rooms and Parking Bays (Resus trolley, Wheelchair, mobile X-ray) **RESPONSE: THIS RULE APPEARS REASONABLE**	-	NC	Equipment list on Watchlist to be rationalised and concluded as an element of design development.	Agreed		n/c		Equipment list on Watchlist to be rationalised and concluded as an element of design development.

RFI no.099 – p31 RFI Log **(Please refer to Bundle 17, Document 16, Page 896)**

AIBI queried the use of duplicated ADB briefing codes and the GGC NHS acknowledges that the clinical briefing is not yet complete; refer to RFI no.133 – p42 RFI Log.

Ref	Information Requested	Add	No Change / Info	Board Comment 1	Status	Brookfield Comment	Board Comment 2	Brookfield Comment 2	Agreed Position
133	With reference to Tender Addendum **TAD-00023**, and the attached documents **'NSGH Suggested Drawn Rooms'** and **'NCH Suggested Drawn Rooms'**, please clarify the following discrepancies in relation to the Document Volume Three 'Bid Deliverables and Evaluation', Section 2.9 '1:50 Room Layout and Wall Elevations' ITPD List of Key Rooms : (1) There are duplicate Room Types (ADB Briefing Code); **X0240** – used for: NSGH Renal Wards 16 Beds + Day Unit – Minor Procedures & Treatment Room and NSGH Accident & Emergency – Major Procedure Room – **X0253** – used for: NSGH Renal Wards 16 Beds + Day Unit – 4 Station Dialysis Room and NSGH Dialysis Unit (30 Stations) – 4-Bed Dialysis - **V1610** – used for: NSGH Generic Wards 28 Beds – Patients En-Suite Assisted Shower, WC, & Wash Double Assist NCH Assessment Area 20 Beds – Shower, WC, & Wash: Accessible, Wheelchair Assisted - **N0111** – used for: NSGH Radiology – Radiological/Surgical Endovascular Laboratory Theatre NCH Cardiac Cath Lab & Interventional Radiology Suite – Interventional Radiology Lab **E0127** – used for: NSGH Radiology – General Computed Radiography Room inc Control Area NCH Radiology – General Computed Radiography X-Ray Room inc Control **X0240** – used for: NSGH Renal Wards 16 Beds + Day Unit – Minor Procedures & Treatment Room (inc prep) NSGH Accident & Emergency – Major Procedure Room **X0242A** – used for: NSGH Accident & Emergency – MIU Assess / Treatment Room NCH Accident & Emergency – Assess & Treatment Room A&E, Multi-Functional Please confirm if this is correct? If any require a different Clinical Briefing please provide this to enable us to produce the drawings as requested **RESPONSE:** Generally this is correct. In the absence of any dialogue with end users the same level of equipment has been assumed for costing purposes hence the allocation of the same room code to potentially different room types. The development of the detailed clinical brief won't happen until after the preferred bidder has been selected. For the purpose of the submission if the same ADB room code is allocated to more than one room then the same 1:50 drawing will do for both rooms provided they are the same area on the SoA. Where the areas differ then we would expect a drawing for each room albeit with the same level of equipment.	-	NC	Equipment list on Watchlist to be rationalised and concluded as an element of design development.	Agreed	*Subject to Brookfield bid submission	n/c		Equipment list on Watchlist to be rationalised and concluded as an element of design development.

RFI no.133 – p42 RFI Log **(Please refer to Bundle 17, Document 16, Page 907)**

Compliance of the Laboratory with the low carbon target of 80kgCO2/m2/annum was to be achieved by connection to the Energy Centre, with the shell and core as a minimum to be completed to co-ordinate with the completion of the Labs Building. Refer to RFI no.144 – p50 RFI Log and RFI no.147 – p50 RFI Log.

Ref	Information Requested	Add	No Change / Info	Board Comment 1	Status	Brookfield Comment	Board Comment 2	Brookfield Comment 2	Agreed Position
144	Have, and how have, the Labs team achieved the 80kgCO2/m2/annum design energy target? **RESPONSE:** The Laboratory Design is ongoing and the model is being refined, however, the overall solution is integrated with the Energy centre. Further design information will be made available in due course.	Y		This is an aspect of the design that the Contractor is responsible for and requires to develop and satisfy in the Laboratory element of the scheme.	Agreed	As clarified in Brookfield Bid submission, the ITSFB design does not currently meet this requirement and any fundamental change to the Labs Scheme that may be required to be implemented, if practical, to achieve this energy target will be a Change under the Contract	Compliance to be achieved upon connection to the Energy Centre.	Agreed	Compliance to be achieved upon connection to the Energy Centre.

RFI no.144 – p50 RFI Log **(Please refer to Bundle 17, Document 16, Page 915)**

147	Re Energy Centre We would be pleased if the Board would urgently confirm the start date of the Energy Centre as there appears to confusion as to the verbal advice given at the last dialogue meeting. Response: The Energy centre forms part of the main hospital build and should commence in Nov.2010 at outset of stage 3	-	Info	No action required in respect of this RFI.	Agreed	Brookfield would note that all Works in this regard is currently included in Stage 3 Works.	Energy Centre will be part of Stage 3 and expectation is that the shell, as a minimum, will be completed in year 1 to coincide with completion of laboratories.		Energy Centre will be part of Stage 3 and expectation is that the shell, as a minimum, will be completed in year 1 to coincide with completion of laboratories.

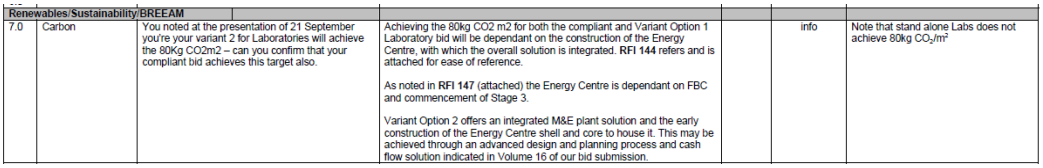
RFI no.147 – p50 RFI Log **(Please refer to Bundle 17, Document 16, Page 915)**

3.5 The Clarifications Log

The Clarifications Log **(Please refer to Bundle 17, Document 17, Page 918, 925 and 927)** captured the agreed contractual position on the Technical Design Clarifications raised initially by the GGC Board and their Technical advisors on the BM Bid response/ Contractor's proposals.

Technical Clarifications of note are as follows;

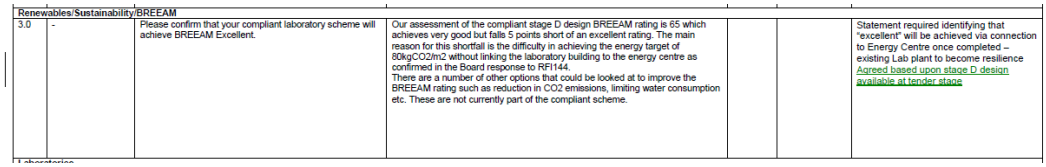
Technical Clarification 1, Item 7.0 – the Laboratory building would not achieve the 80kg CO2m2 low carbon as a stand-alone construction without including some aspect of the Energy Centre.



Renewables/Sustainability/BREEAM						
7.0	Carbon	You noted at the presentation of 21 September you're your variant 2 for Laboratories will achieve the 80Kg CO2m2 – can you confirm that your compliant bid achieves this target also.	Achieving the 80kg CO2 m2 for both the compliant and Variant Option 1 Laboratory bid will be dependant on the construction of the Energy Centre, with which the overall solution is integrated. **RFI 144** refers and is attached for ease of reference. As noted in **RFI 147** (attached) the Energy Centre is dependant on FBC and commencement of Stage 3. Variant Option 2 offers an integrated M&E plant solution and the early construction of the Energy Centre shell and core to house it. This may be achieved through an advanced design and planning process and cash flow solution indicated in Volume 16 of our bid submission.		info	Note that stand alone Labs does not achieve 80kg CO_2/m^2

Technical Clarification 1, Item 7.0 **(Please refer to Bundle 17, Document 17, Page 916)**

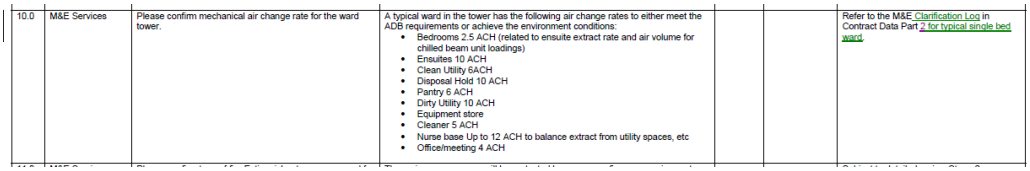
Technical Clarification 3, Item 3.0 – confirms that the Stage 3 Labs building design provided within the ERs would not achieve the required BREEAM 'excellent' rating without connection with the Energy Centre at handover.



Renewables/Sustainability/BREEAM						
3.0	-	Please confirm that your compliant laboratory scheme will achieve BREEAM Excellent.	Our assessment of the compliant stage D design BREEAM rating is 65 which achieves very good but falls 5 points short of an excellent rating. The main reason for this shortfall is the difficulty in achieving the energy target of 80kgCO2/m2 without linking the laboratory building to the energy centre as confirmed in the Board response to RFI144. There are a number of other options that could be looked at to improve the BREEAM rating such as reduction in CO2 emissions, limiting water consumption etc. These are not currently part of the compliant scheme.			Statement required identifying that "excellent" will be achieved via connection to Energy Centre once completed – existing Lab plant to become resilience Agreed based upon stage D design available at tender stage

Technical Clarification 3, Item 3.0 **(Please refer to Bundle 17, Document 17, Page 925)**

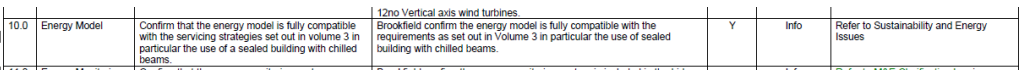
Technical Clarification 4, Item 10.0 M&E Services – confirms the proposed mechanical air change rates for the ward tower. This provides greater detail to the proposals for the typical rooms within a 'typical ward'. There is a link to the M&E Clarifications Log for a 'typical single bed ward'.



10.0	M&E Services	Please confirm mechanical air change rate for the ward tower.	A typical ward in the tower has the following air change rates to either meet the ADB requirements or achieve the environment conditions: • Bedrooms 2.5 ACH (related to ensuite extract rate and air volume for chilled beam unit loadings) • Ensuites 10 ACH • Clean Utility 6ACH • Disposal Hold 10 ACH • Pantry 6 ACH • Dirty Utility 10 ACH • Equipment store • Cleaner 5 ACH • Nurse base Up to 12 ACH to balance extract from utility spaces, etc • Office/meeting 4 ACH			Refer to the M&E Clarification Log in Contract Data Part 2 for typical single bed ward.

Technical Clarification 4, Item 10.0 **(Please refer to Bundle 17, Document 17, Page 927)**

Renewables/Sustainability/BREEAM - Item 10 Energy Model confirms the acceptance of the strategy of a sealed building with chilled beams.



			12no Vertical axis wind turbines.			
10.0	Energy Model	Confirm that the energy model is fully compatible with the servicing strategies set out in volume 3 in particular the use of a sealed building with chilled beams.	Brookfield confirm the energy model is fully compatible with the requirements as set out in Volume 3 in particular the use of sealed building with chilled beams.	Y	Info	Refer to Sustainability and Energy Issues

Item 10 – p3 Clarifications Log **(Please refer to Bundle 17, Document 68, Page 2821)**

3.6 M&E Clarifications Log

The M&E Clarifications Log (Please refer to Bundle 16, Document 23, Page 1662) captured the agreed contractual position on the M&E related clarifications raised initially by the GGC Board/Technical advisors on the BM Contractor's M&E bid design proposals.

The main M&E Design Clarification of note being the agreement to reduce the Ward Air Changes from 6AC/HR to 2.5AC/HR, with the non-compliance noted and accepted as the Agreed Contract position. Refer to M&E Clarifications Log - Ventilation – pages 4-5 **(Bundle 16, Document 23, Page 1662)**.

	-	-	Ward Air change to be 6AC/HR, currently shown as 2.5AC/HR which is not in compliance with SHTM 03-01.	**Agreed**	Brookfield proposal as outlined within the bid submission is to incorporate chilled beams as a low energy solution to control the environment which do not rely on large volumes of treated air or variable natural ventilation. All accommodation is single bedrooms and therefore the need for dilution of airborne microbiological contamination should be reduced (rooms could also be at slightly negative pressure to corridor). Providing 6 air changes is energy intensive and not necessary.		**Agreed** The proposal is accepted on the basis of 40 litres per second per single room (8 litres per second per second) for one patient and four others. Joint review to be carried out between the Board and Brookfield of the energy model to determine any impact on the energy target/BREEAM rating. Brookfield, however, remain responsible for achievement of the energy target/BREEAM, with £250,000 added to the contract sum in this regard.
							Negative pressure to be created in the design solution.

Ventilation – p4-5 M&E Clarifications Log **(Bundle 16, Document 23, Page 1662)**

3.7 The Sustainability Log

The Sustainability Log **(Bundle 17, Document 18, Page 935 – 936)** was co-ordinated with the agreed Ventilation Strategy including reduced air changes to the Typical Wards (refer to page 2 of the Sustainability Log). To achieve the more stringent than HTM Guidance upper temperature limitations all continuously occupied spaces would require mechanical air cooling or chilled beams. There was an agreement to review the strategy during Stage 2 as the design developed to a point where the whole building could be thermally modelled. At the Bid Stage the focus was on the Ward Tower, given this was where there would be a preference for natural ventilation for patient control

and comfort. A large proportion of the podium departments contained specialist areas such as Theatres, Critical Care and Radiology, which would require a sealed façade to comply with the technical requirements.

11) Natural Ventilation

- Clarify extent of openable windows within bid

The Board's requirement to limit space temperatures to 26°C means that the use of natural ventilation is limited and that a sealed building is the only way to meet the requirement.

J:\Projects\GW4800-4899\GW4854M NHSGG&C New South Glasgow Hospital ASR2\Logs for 05jan\Folder B\The Sustainability Log (final agreed for contract).doc

Page 2 of 3

There may be areas that can be naturally ventilated, but this can only be determined once the whole building has been thermally modelled during the detailed design stage, and is reliant on the following being available:-

- Signed off 1-200 layouts
- Signed off envelope details
- Agreed information on occupancy and equipment gains
- Agreed room environmental conditions (also expressed on a set of Environmental Treatment drawings)

However, at this time our opinion is that all continuously occupied spaces will be sealed and use either all air or chilled beams to maintain the required conditions. Transient spaces such as street, circulation spaces and atria (subject to CFD analysis) are envisaged as being naturally ventilated, as there is unlikely to be a strict requirement for upper temperature control

Sustainability Log p2 **(Bundle 17, Document 18, Page 935 – 936)**

3.8 Summary

Sealed Building

The Sustainability Log confirms that the agreed Contract position was in order to achieve the Board's requirement to limit space temperatures to 26deg that a sealed building was the only way to achieve this. There was an agreement to review again during Stage 2 when the full Thermal Model would be available.

Ward Air Changes

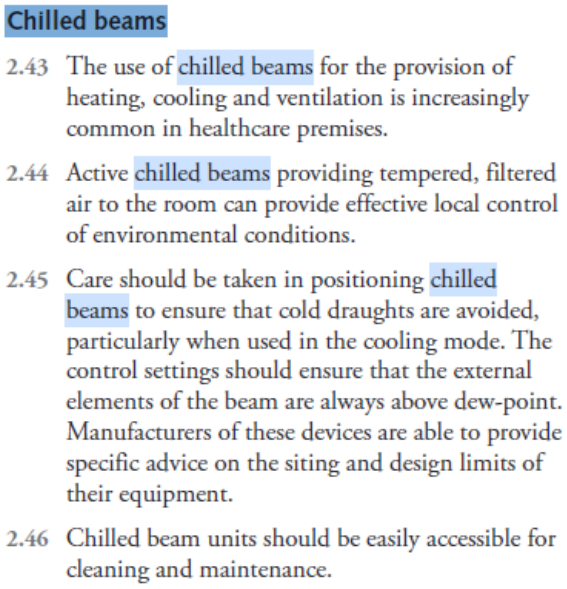
The M&E Clarification Log confirmed the acceptance of the Contractor's proposed design solution for the Ward Air changes to be 2.5 AC/H. It is unclear whether this was the agreement for all Wards, although it should be noted at this stage the MEP Design addressed a 'Typical Ward' only. Section 2.45 **A52701549 – Typical Ward Supply System Schematic - July 2009 Bundle 43, Volume 5, Page 48** shows a Typical Ward Supply System Schematic of the proposed ventilation system. It should be noted that this was not the intended design solution for Isolation Rooms. Section 2.45 **A52701548 - Typical Isolation Room Supply Schematic - July 2009**

Bundle 43, Volume 5, Page 47 is a Typical Isolation Room Supply Schematic of the proposed ventilation system.

Active Chilled Beams

The ventilation & air treatment design strategy proposed and agreed confirms that all ward rooms will be provided with a means of mechanical cooling in the form of an active chilled beam. The active chilled beams operate most effectively with the windows sealed as this reduces the likelihood of condensation. NA-IBI were familiar with the use of chilled beams in hospitals. These were adopted by ZBP in the heating and cooling strategy at Peterborough City Hospital, which was a mixed mode ventilation strategy. These are also installed historically in other UK Healthcare Projects, such as Great Ormond Street Hospital, London; Royal London and St Bart's Hospitals, London; Gartnavel General Hospital, Glasgow; Beaston Oncology, Glasgow; New Victoria Hospital, Glasgow.

Chilled beams were a more innovative and sustainable way of cooling rooms, which required less energy than using mechanical ventilation to cool the air. As seen on page 11, HTM 03-01 Specialised Ventilation (2007) **(Bundle 19, Document 36, Page 640)** chilled beams were permitted in HTM 03-01 and noted as increasingly common. There was limited design guidance and restrictions noted within the HTM at the time of the proposed design solution.



Chilled beams

2.43 The use of chilled beams for the provision of heating, cooling and ventilation is increasingly common in healthcare premises.

2.44 Active chilled beams providing tempered, filtered air to the room can provide effective local control of environmental conditions.

2.45 Care should be taken in positioning chilled beams to ensure that cold draughts are avoided, particularly when used in the cooling mode. The control settings should ensure that the external elements of the beam are always above dew-point. Manufacturers of these devices are able to provide specific advice on the siting and design limits of their equipment.

2.46 Chilled beam units should be easily accessible for cleaning and maintenance.

HTM 03-01 Specialised Ventilation (2007) p11 **(Bundle 19, Document 36, Page 640)**

4. STAGE 2 - DETAILED DESIGN OF THE ADULT AND CHILDREN'S HOSPITALS

4.1 Summary

4.2 Stage 2 of the project involved development of the hospital designs. This part of the project commenced in November 2009 and was completed in November 2010. As part of my role, I was the designated lead for the set-up of the 1:200 and 1:50 design processes. I also assisted in the RDS process, which was led initially by Tribal Consulting, the healthcare planners. Throughout this stage, I managed the IBI team in the production of our design, and worked closely with GGHB, BM and the other members of the Design Team to oversee the "design deliverables" set out at Appendix K of the Invitation to Participate in Dialogue ("ITPD"), which were required for submission of GGHB's Full Business Case ("FBC") to the Scottish Government. Our Project Director, Neil Murphy, working closely with our Masterplanning and Architecture Lead, Jamie Brewster, and managed the process of achieving formal planning consent for the project from Glasgow City Council which was required to occur concurrently.

4.3 The Stage 2 Design Programme was structured around the clinical stakeholder UGMs. Again, I was the IBI lead in the development of the UGM timetables, supporting the GGHB Project Team to develop meeting protocols and I prepared and managed the 1:200 UGM Tracking Schedule & Programme **(Please refer to Bundle 17, Document 30, Page 1387).** A total of 46 different clinical department groups were established, which went through three (in some cases four) rounds of clinical user consultations to achieve a "sign-off" from GGHB in May 2010.

4.4 Following the conclusion and agreement of the 1:200 Department Design Stage, work commenced on the 1:50 Designs; initially to ensure the fixtures, fittings and equipment had been incorporated into one of every Room Type identified in the hospitals. A total of approximately 500 room type drawings were developed for Appendix K. I worked closely with our specialist 1:50 team based in Cape Town, who were led by Alex Van Den Berg. Alex had previously worked in the UK in Nightingale's Harwell Office and was a

specialist in 1:50 room loading and the management of the associated Codebook databases. We developed the programme and process together; Alex also worked closely with George Iliopoulos, who was Tribal's RDS and Equipment Lead, and they developed the methodology and information flows between the ADB database and Codebook database, including the exporting and importing of the environmental data. The production of the RDSs was managed and led at this stage by the Health Planners, Tribal. George liaised directly with the GGC NHS lead for the RDS, Frances Wrath, with the final agreed template RDSs imported into the IBI project Codebook database by Alex and his team.

4.5 This was an important process in developing the specifications for each of the different types of room, which served as a detailed brief for the 1:50 design stage, and a brief for the mechanical and electrical engineers to progress their technical design **(A52701451 - NSGH 1:200 & 1:50 Design Process Map – undated – Bundle 43, Volume 4, Page 768).**

4.6 Concurrently with the 1:200 UGMs, a formal dialogue commenced with Glasgow City Council Planning Department. This consisted of a series of meetings and presentations to the planning team and various stakeholders including Architecture Design Scotland and other statutory bodies (Scottish Water, SEPA etc) to ensure the external massing, materials and site masterplan responded to their various requirements prior to the formal planning submissions procedures. **A52701539 – New South Glasgow Hospital Project - Stage 2 Detailed Design to Full Business Case Programme – Bundle 43, Volume 5, Page 16.**

4.7 Team Structure

The intensive 18-week design period for the bid required a team of approximately 16 staff in the UK, supported by our specialist delivery team who were based in Cape Town. This team was reduced to a minimum to respond to the bid clarifications from September until the end of 2009. Following our Team's selection by the NSGH Board as their preferred partner on 4th November, 2009 the 'cooling-off' period was used to develop the

project plan and programme, review the fees and associated resources, and build a team and structure to deliver the project.

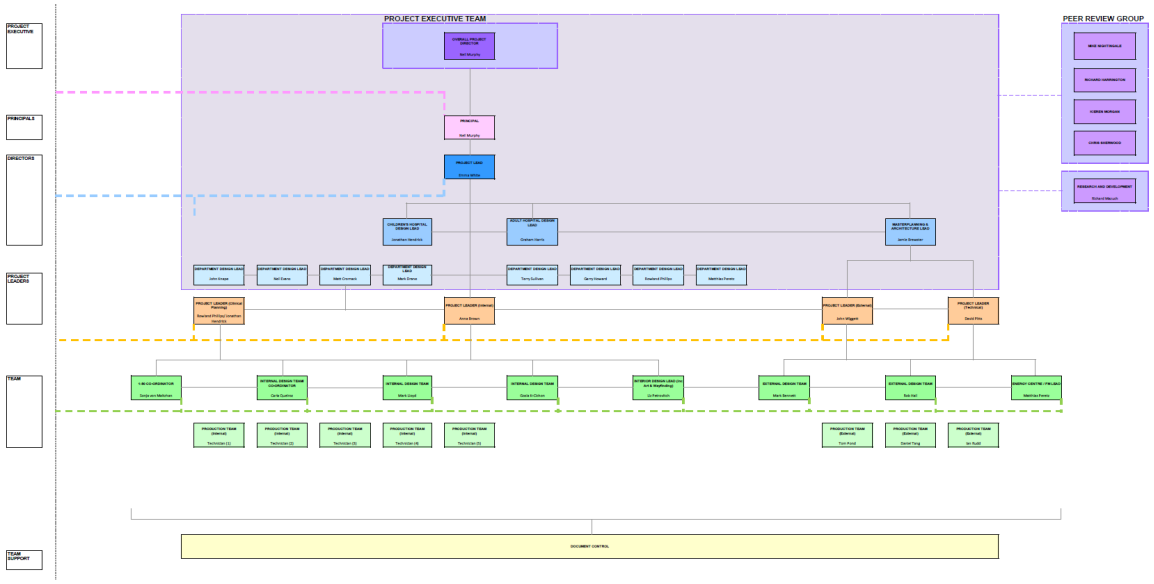
4.8 The core project team were incrementally built up again to commence the Stage 2 Programme at the beginning of January 2010. As the IBI Project Lead I had the responsibility for developing our Project Delivery Strategy, including setting-up the team and structure to deliver the programme.

4.9 The initial strategy was to have a Project Director/Lead for the Adult Hospital, Project Director/Lead for the Children's Hospital, a Project Director/Lead for Masterplanning & Architecture, and a Clinical Design Lead, with a set of Project Leaders for Internals, Clinical Planning and Externals managing a team beneath them following a similar structure.

4.10 Due to the scale of the hospital, totaling approximately 175,000m2, and the challenging programme requirements to achieve the Appendix K/FBC submission in approximately 9 months, we needed to expand the Senior team to design the 46 departments and we brought together a team of Department Design Leads from across our UK offices in Harwell, Cardiff and Rochdale, who were our most experienced Senior Architects and Designers to effectively provide a 'whole practice' approach. We reviewed who had the most relevant experience for each department type and designated the Department Design Leads.

4.11 The Stage 2 Department Design Leads were Graham Harris, Garry Howard, Rowland Phillips, Matthias Peretz, Terry Sullivan, Jonathan Hendrick, John Knape, Neil Evans, Mark Drane and Matt Cromack. This group led the design of their designated departments at each of the 46 User Group Meetings set up for the different areas of the hospitals. Each of the department leads was responsible for reviewing their designs against the department briefs, and generally in relation to work around their allocated departments. The department leads reported to myself, Anna Brown, Project Leader (Internals) and her assistant, Carla Queiroz, who were based with me in the London office, which was the lead office. The overall process was managed by me in my role as overall Project Lead. In terms of

other individual roles, Graham Harris maintained an overview role on clinical design issues relating to the Adult Hospital as well as actively participating in various aspects of the design/other stakeholder engagement requirements. Jonathan Hendrick had the equivalent role on the Children's Hospital, where he developed the design and led the user group meetings for the majority of its departments. **A52701540 - New South Glasgow Project - Organogram Stage 2 – Bundle 43, Volume 5, Page 22.**



Organogram showing IBI team structure - Stage 2. **A52701540 - New South Glasgow Project - Organogram Stage 2 – Bundle 43, Volume 5, Page 22.**

4.12 User Group Meetings (UGM) / Stakeholder Process / Meeting Protocols

As part of my role as Project Lead, I also led and set up a number of key project protocols and design management tools/schedules.

1:200 User Group Meeting Programme

The 1:200 User Group Meeting Tracking Schedule & Programme was developed to support both our management of this complex process, but also to provide the GGC Project Team with clarity over who from the NA-IBI team would the Department Design Lead, which drawing(s) would be issued, when they would be issued before the UGM meeting and the date of the meeting. This would also serve as a Tracking Schedule, to check and report on the progress of each Department. The Department Design Leads would report back to me and our Internal Project Leader after their meetings on the meeting progress and issues. I would then record the status and report back

through the NSGH Hospital Design Group for agreement with the NHS Project Team. **A52701547 – New South Glasgow Hospitals 1:200 User Group Meeting Tracking Schedule and Programme Rev 16 (FBC submission) Bundle 43, Volume 5, Page 45.**

1:200 User Group Meeting Timetable

This was supported with a meeting timetable, which was updated to take account of any amendments to meeting dates, and we used this to clarify our team attendance. In addition, a supplementary meeting schedule was used to confirm the locations for the meetings which was confirmed by the NHS Project Team. **A52701544 - Adult Design User Group Meetings 1 - 1:200 Stage (Week One) Bundle 43, Volume 5, Page 34;**
A52701542 - Adult Design User Group Meetings 2 - 1:200 Stage (Week One) Bundle 43, Volume 5, Page 27;
A52701546 - Adult Design User Group Meetings 3 - 1:200 Stage (Week One) Bundle 43, Volume 5, Page 41;
A52701543 - Children's Design User Group Meetings 2 - 1:200 Stage (Week Three) Bundle 43, Volume 5, Page 30;
A52701545 - Children's Design User Group Meetings 3 - 1:200 Stage (Week Four), Bundle 43, Volume 5, Page 38;
A52701541 - Children's Design User Group Meetings 1 - 1:200 Stage (Week Four) Bundle 43, Volume 5, Page 24.

Drawing & Correspondence Protocol

Although the standard for project communications was through Aconex, it was agreed by Multiplex that NA-IBI could issue and distribute the drawing packages to the NHS Project Team through Outlook, and we would subsequently issue the drawings to the rest of the Design Team on Aconex. This email issue of the 1:200 drawing packages was generally through myself, Anna and Carla. The NHS would also send their queries to us, so we could co-ordinate with our team. (**A52700909 – NSGH Drawing & Correspondence Protocol for UGMs – 03 February 2010 – Bundle 43, Volume 4, Page 296).**

This process allowed the NHS Project Team to easily locate the correct drawings for each of the 46 department meetings, and to issue internally to their wider users. We would receive a copy of these ‘briefing’ emails from the NHS, however we were not party to any ongoing correspondence between the NHS Project Team and their users. We were aware of the vast numbers

of stakeholders the NHS Project Team had to consult with, which was hugely complex as there were effectively five hospitals coming into one. This was particularly so for some of the larger Adult Hospital departments, such as Critical Care and the Inpatient Ward, which during some early meetings had up to 30 NHS attendees.

Change Control Process

At Stage 2, a key requirement was to agree the 1:200 Department Layouts, however as the Bid Design had been developed only with the feedback from the GGC Project Team and their Technical Advisors, it was important that the users were provided with the opportunity to comment on the design and ensure that it met their clinical requirements.

As a result, quite an 'open' definition of Design Development was proposed. This was captured in a key protocol document produced by myself and agreed between Multiplex and the NHS Project Team. **(A52700768 - NSGH - Scheme Design – 1:200 Stage of Design Development – undated- Bundle 43, Volume 4, Page 292).**

The NHS Project Team produced their own protocol document 1-200 Design Process Explained – Final (**A52697603 – 1:200 and 1:50 Design process Explanation by Emma White – undated – Bundle 43, Volume 4, Page 24**) to further explain their own internal process and procedures, to explain to the users what would be required if any changes were requested. In reality, the main concerns were any changes which impacted the boundary area of a department, as these could have impacts on an adjacent department, potentially impacting the overall building area/footprint and thus increasing the cost.

In addition, the NHS Project Team produced a **User Group Remit (A52701528 - User Group Terms of Reference - Haemato-Oncology Bundle 43, Volume 6, Page 74)** document which clarified the Terms of Reference for the User Group, confirming the name of each Group Lead, their responsibilities and the overall process. The aim of the User Group was clarified as follows;

'To provide a forum for agreement/sign off of the 1:200 and 1:50 architectural drawings for the Department. Please note that the architectural drawings will be based on the previously signed off Schedules of Accommodation which are now fixed. Sign-off of the drawings will follow a formal procedure and will be recorded on the "Design Acceptance Procedure" Form. This form will record the outcome of each meeting and be signed by the User Group Lead on behalf of the Directorates at the end of each meeting.'

It should be noted that the Multiplex team, including NA-IBI, were not involved in the development and approval of the Client Brief Schedule of Accommodation.

'**3. Membership**

- The membership of the group has been approved by the Acute Services Director(s)
- The Group will have an identified Lead
- Members will be responsible for (i) discussing the design with colleagues and in the user meetings (ii) for communicating the priorities and associated work plans agreed by the Group to their colleagues following each meeting'
-

'**4. Group Lead**

- The Group Lead will be responsible for the ensuring that Directorate priorities are reflected in the design
- The Group Lead will be responsible for keeping their Director appraised of the status of the design process
- Where differing options regarding the design arise the Project Team will take their instruction from the Group Lead'

It should be noted that the Multiplex team, including NA-IBI, were not involved in the decision of who was a group member or lead. All our dialogue was through the NHS Project Team.

4.13 1:200 Department Layout Plans

In general, all the 1:200 Department Layouts were signed-off and approved within the 3 rounds of clinical UGMs. There were a small number of departments which required a 4th meeting to resolve some outstanding concerns from the users.

The NHS signatories on the 1:200 department layout plans were the designated Department User Group Lead(s); the NHS Project Manager (Heather Griffin for the Adult Hospital and Mairi Macleod for the Children's Hospital); the NHS Project FM Lead (Karen Connelly); the NHS Project Nursing Lead (Fiona McCluskey) and the NHS Project Infection Control Lead (Jackie Stewart). You will also note the signature of the NA-IBI Department Lead.

I have reviewed our User Meeting records to provide a summary of the departments of interest to the SHI, namely Ward 4B – QEUH; Ward 4C – QEUH; Level 5 – QEUH; Critical Care – QEUH; Ward 2A & 2B – RHC; PICU – RHC; and Isolation rooms.

Department #18 UGM - Adult Haemato-Oncology – [Ward 4B – QEUH]

UGM 01 - Date of Meeting 4th February, 2010

The 1:200 Department Layout prepared as part of the ITPD Bid Submission was issued to the Users in the Briefing Pack UGM 01. New South Glasgow Hospital Haemato-Oncology User Group Meeting Thursday 4th February 2010 **(A52701416 - Design Acceptance Procedure Form - Haemato-Oncology User Group Meeting Action Points – 04 February 2010 – Bundle 43, Volume 4, Page 404)**. The User Group Remit identified Gary Jenkins as the designated Group Lead.

During UGM01 there was a considerable doubt as to whether the unit would be in the new Hospital. The recorded minutes of the meeting were issued by the NHS Action Points - Haemato-oncology 4 Feb 2010 **(A52701416 - Design Acceptance Procedure Form - Haemato-Oncology User Group Meeting Action Points – 04 February 2010 – Bundle 43, Volume 4, Page 404**).

'Item 2 noted 'Potential options for Haemato-Oncology are:

	Inpatient Beds	Day Beds
Option 1	10	0
Option 2	7	0
Option 3 *	0	0

***** Under this option Haemato-Oncology would be absorbed into current medicine beds and day activity to ACH.

14 inpatient beds and 4 day beds is no longer an option.'

Item 3 noted 'Ventilation – Options 1 & 2 – require Hepa Filtered and no opening windows, reliance on mechanical ventilation throughout.' and 'One Treatment Room negatively pressurised as before.'

A revised brief was issued FW Haemato-oncology - revised schedule (**A52701395 – Email chain from Emma White to Neil Evans and others – Haemato-oncology – revied schedule – 17 March 2010 – Bundle 43, Volume 4, Page 398).**

'As discussed Haemato-- oncology are reducing from 14 inpatient beds and a day case area to 10 beds and no day case area. However, as highlighted on the attached schedule, please note that the areas released by Haemato-oncology (ie 4 beds and day case area) should be ring fenced on the layouts for future development.'

- **UGM 01 Change Status – B (medium change)**

UGM 02 - Date of Meeting 25th March, 2010

A revised 1:200 department layout was prepared to reflect the revised brief and issued for comments to Heather Griffin prior to the issue for UGM02. Further updated 1:200 department layout plans were developed in sketch form initially (refer to NA-ZE-04-PL-252-403 REV02 and REV 03 HAEMATO-ONCOLOGY) prior to being updated in the CAD model and issued for UGM02.

NA-ZE-04-PL-252-403 REV02 HAEMATO-ONCOLOGY **(A52701536 - Fourth Floor Haemato-Oncology Ward 1:200 Design Development - 22 March 2010 – Bundle 43, Volume 4, Page 1495)**

NA-ZE-04-PL-252-403 REV03 HAEMATO-ONCOLOGY **(A52701534 – NA-ZE-04-PL-252-403 REV03 HAEMATO-ONCOLOGY Bundle 43, Volume 6, Page 13)**

The recorded minutes of the meeting were issued by the NHS Action Points - Haemato-oncology 25 March 2010 (**A52701531 – Bundle 43, Volume 6, Page 1130)**

Comments were also received from Tribal, the Healthcare Planner on email (refer to 2010-03-26 - Scott McCallum - Adult Haem Onc Ward.) **(A52701419 - Email from Scott McCallum to Mark Drane and Neil Evans - Adult Haemato - Oncology Ward - 26 March 2010 – Bundle 43, Volume 4, Page 1490).**

ZBP mark-up comments were received on or around 7th April 2010 (refer to 2010-04-07 NA-ZE-04-PL-252-403_03 COMMENTS.) **(A52701529 – ZBP comments on 1:200 Fourth Floor Haemato-oncology Ward – 30 March 2010 – Bundle 43, Volume 4, Page 1489).**

- **UGM 02 Change Status – B (medium change)**

UGM 03 – Date of Meeting 7th May, 2010

The updated 1:200 department layout was issued prior the UGM 03, which took place on 7th May, 2010. All the Action Points were addressed and the design was accepted by the users, with the Design Acceptance Form returned.

- **UGM 03 Change Status** – **SIGNED-OFF**

- Haemato-oncology - 7 May 2010 [NHS Design Acceptance Sign-Off Form] **(A52701532 – 1:200 Haemato-oncology User Group Meeting Bundle 43, Volume 6, Page 17)**
- 2010-05-07 NSGH UGM3 Haemato-oncology04 1-200 Signoff **(A52701417 – NSGH Haemato-oncology Ward – 1:200 Fourth Floor Plan – 02 September 2009 – Bundle 43, Volume 4, Page 406)**

<u>Department #4 UGM – Adult Renal Inpatients & Day Unit</u> – [Ward 4C – QEUH]

UGM 01 - Date of Meeting 21st January, 2010

The 1:200 Department Layout prepared as part of the ITPD Bid Submission was issued to the Users in the Briefing Pack UGM 01. New South Glasgow Hospital Renal User Group Meeting 21st Jan 2010 (**A52701394 - Email from Carol Craig to Isobel Brown and others - New South Glasgow Hospital: Renal User Group Meeting, 21st Jan 2010 - 15 January 2010 – Bundle 43, Volume 4, Page 1444).** The User Group Remit identified Julia Little as the designated Group Lead.

The recorded minutes of the meeting were issued by the NHS Action Points - Renal Meeting 210110 (**A52701017 - "Design Acceptance Procedure Form - Generic Ward User Group meeting Action Points - 20 January 2010 – Bundle 43, Volume 4, Page 360).** In addition, the IBI Department Lead prepared a mark-up to capture the user comments raised during the meeting. There was extensive dialogue during the meeting, with dialogue afterwards between the IBI Department Lead and Tribal. A request was also made to the NHS to visit the existing renal dialysis facilities at Stobhill.

- **UGM 01 Change Status – B (medium change)**

UGM 02 - Date of Meeting 10th March, 2010

The updated 1:200 department layout was issued prior the UGM 02, which took place on 10th March, 2010. The recorded minutes of the meeting were issued by the NHS Action Points - Renal Meeting 100310 (**A52701445 – NSGH – Medical Planning Group meeting No 2: 10th March 2010 – Action Note – Bundle 43, Volume 4, Page 747).**

- **UGM 02 Change Status** (L4 Renal Ward/Day Unit) - **A (minor change / nominal change)**

UGM 03 - Date of Meeting 22nd April, 2010

The updated 1:200 department layout was issued prior the UGM 03, which took place on 22nd April, 2010. There were a small number of outstanding Action Points recorded and the design was accepted by the users subject to addressing the remaining comments, with the Design Acceptance Form returned.

- **UGM 03 Change Status – SIGNED-OFF**

- Renal - 22 April 2010 [NHS Design Acceptance Sign-Off Form] **(A52701504 – 1:200 Renal User Group Meeting Bundle 43, Volume 6, Page 14)**
- 2010-04-22 NSGH UGM3 Renal Ward 04 1-200 Signoff (**A52701505 - NSGH - 1:200 Fourth Floor Plan - Higher Acuity Renal Ward/Renal Ward - 02 September 2009 – Bundle 43, Volume 4, Page 1433).**

Department #1 UGM – Adult Generic Inpatients – [Level 5 – QEUH]

Note Level 06 was reviewed to agree the 1:200 layout for the Generic Inpatient Wards. At this stage of the design the ward tower was designed as Generic Wards from Level 05 upwards.

UGM 01 - Date of Meeting 20th January, 2010

The 1:200 Department Layout prepared as part of the ITPD Bid Submission was issued to the Users in the Briefing Pack UGM 01. New South Glasgow Hospital Generic Ward Users Group Meeting 20th Jan 2010 **(A52701397 – Email from Carol Craig sent on behalf of Heather Griffin – New South Glasgow Hospital Generic Ward Users Group Meeting – 20 January 2010 – Bundle 43, Volume 4, Page 1497)**.

The User Group Remit identified John Stuart as the designated Group Lead. The recorded minutes of the meeting were issued by the NHS Action Points Ward User Group 210110 **(A52701142 – Generic Ward User Group Meeting - Action Points Bundle 43, Volume 6, Page 12).**

The isolation rooms/lobby were omitted (the ITPD Brief required 1 room per 28 bed ward to be used for isolation purposes and that will have an associated gowning lobby). The remaining comments related to the support rooms, and improving the visibility of the end bedrooms.

- **UGM 01 Change Status** - **A (minor change / nominal change)**

UGM 02 - Date of Meeting 8th March, 2010

The updated 1:200 department layout was issued prior the UGM 02, which took place on 8th March, 2010. The recorded minutes of the meeting were issued by the NHS. Action Points - Wards 8 March 2010 (**A527015444 - Management - BREEAM - 1 :200 & 1 :50 Design Process - 18 January 2010 – Bundle 43, Volume 4, Page 723**).

- **UGM 02 Change Status** - **A (minor change / nominal change)**

UGM 03 - Date of Meeting 20th April, 2010

The updated 1:200 department layout was issued prior the UGM 03, which took place on 20th April, 2010. In addition, the draft 1:50 room layouts were issued for a typical single bedroom, ensuite and clean utility. There were a small number of outstanding Action Points recorded on the generic ward and the design was accepted by the users subject to addressing the remaining comments, with the Design Acceptance Form returned.

- **UGM 03 Change Status – SIGNED-OFF**
- Wards - 20 April 2010 [NHS Design Acceptance Sign-Off Form] (**A52701526 - NSGACL - Ward Users Group - Attendance Sheet of the meeting on 20th of April 2010 – Bundle 43, Volume 4, Page 1482).**
- 2010-04-20 NSGH UGM3 Generic Inpatient Ward 06 1-200 Signoff01 (**A52701530 – UGM3 Generic Inpatient Ward 06 Sign off – 20 April 2010 – Bundle 43, Volume 4, Page 1488).**
- 2010-04-20 NSGH UGM3 Generic Inpatient Ward 06 1-200 Signoff02 (**A52701527 - UGM3 Generic Inpatient Ward 06 1:200 Sign off - 20 April 2010 – Bundle 43, Volume 4, Page 1487).**

Department #11 UGM - Adult Critical Care [Critical Care – QEUH]

UGM 01 - Date of Meeting 1st February, 2010

The 1:200 Department Layout prepared as part of the ITPD Bid Submission was issued to the Users in the Briefing Pack UGM 01. New South Glasgow Hospital Critical Care Users Group Meeting Monday 1st February 2010 (**A52701396 - Email from Carol Craig to Sandy Binning and others - New South Glasgow Hospital : Critical Care Users Group Meeting, Monday 1st February 2010 - 25 January 2010 – Bundle 43, Volume 4, Page 1420).**

The User Group Remit identified Jacquie Campbell (Surgical) and Michelle Boyd (Medical) as the designated Group Lead (s).

The recorded minutes of the meeting were issued by the NHS Action Points - Critical Care, 1 Feb 2010 (**A52701500 - Design Acceptance Procedure Form Critical Care User Meeting Action Points– 01 February 2010 – Bundle 34, Volume 4, Page 1411).**

There were extensive user comments during the meeting which were recorded on the Action Points.

A revised sketch 1:200 Department Layout 2010-02-01 UGM1 Critical Care 01 Sketch **(A52701501 - UGM1 Critical Care 01 Sketch - 01 February 2010**

– Bundle 43, Volume 4, Page 1417) was prepared to respond to the Critical Care user comments. There were significant changes required, primarily to move ICU (the most critically ill patients) to the middle of the department. The priority was to provide better lines of sight from the nurse bases, and to locate the support services within the clusters,

The layout for the Isolation Rooms were more diagrammatically representative of the layout within HBN 04 Supplement 01 – Isolation Facilities (p14 HBN 4 Supplement 1 - Isolation Facilities) **(Bundle 26, Document 4, Page 286),** rather than the layout in SHPN 57 Facilities for Critical Care (p83 SHPN 57 Facilities for Critical Care) (**A52701495 - Scottish Health Planning Note 57 Facilities for critical care - Draft for Consultation - December 2008 – Bundle 43, Volume 4, Page 1318).** The user preference was to push the bed through a lobby to the side of the room, and to maximize glazing and visibility.

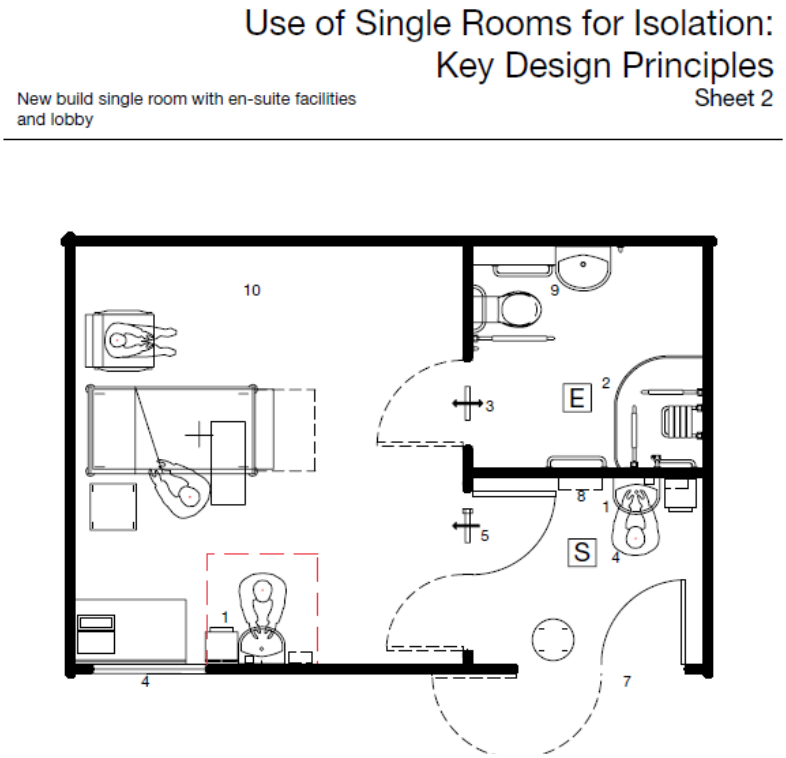


Diagram p14 HBN 4 Supplement 1 - Isolation Facilities **(Bundle 26, Document 4, Page 286)**

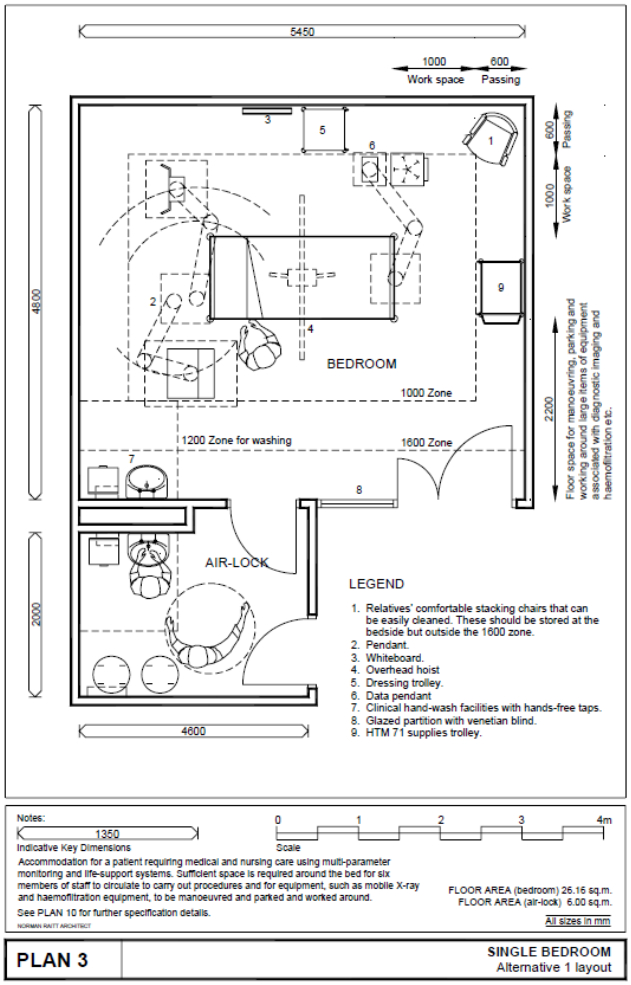
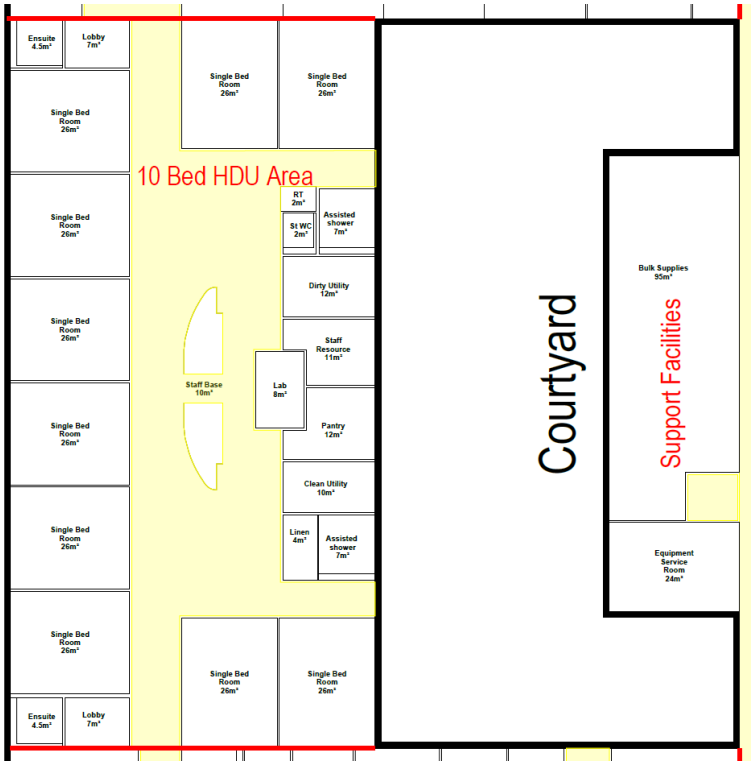
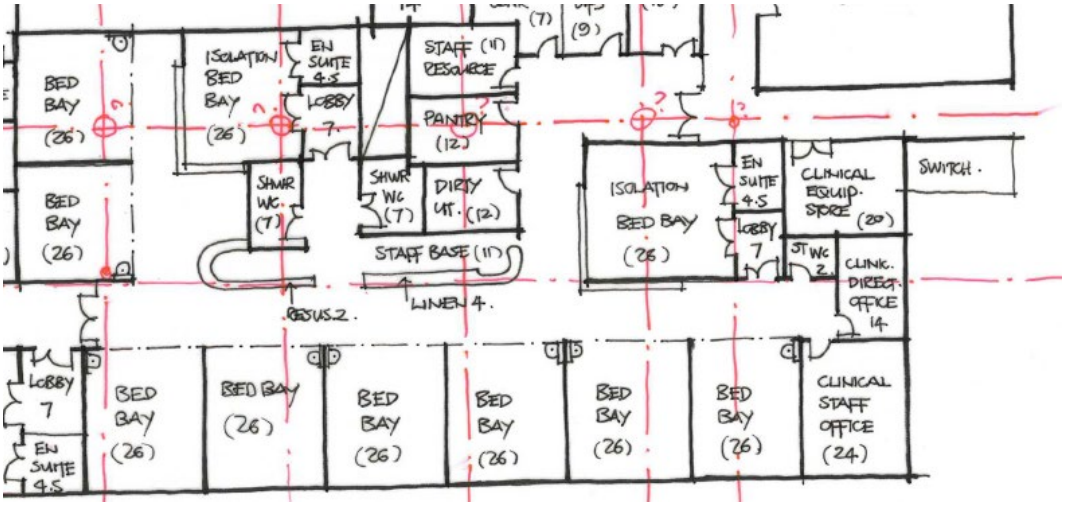


Diagram p83 SHPN 57 Facilities for Critical Care



Extract from Exemplar Design - **A52701468 – NSGH – 1:200 Critical Care Facility (Adults) Room Adjacencies – 30 April 2009 – Bundle 43, Volume 4, Page 1119**

It should be noted that the revised sketch was also closer to the Exemplar Design, with the lobby and ensuite adjacent to the Isolation Bed.



Extract from 2010-02-01 UGM1 Critical Care 01 Sketch **A52701468 – NSGH – 1:200 Critical Care Facility (Adults) Room Adjacencies – 30 April 2009 – Bundle 43, Volume 4, Page 1417**

- **UGM 01 Change Status - C (severe / significant change)**

UGM 02 - Date of Meeting 19th March, 2010

The updated 1:200 department layout was issued prior the UGM 02, which took place on 19th March, 2010. The recorded minutes of the meeting were issued by the NHS. Action Points - Critical Care 19 March 2010 (**A52701496 - Design Acceptance Procedure Form Critical Care User Meeting Action Points – 19th March 2010 – Bundle 43, Volume 4, Page 1317).**

A revised sketch 1:200 Department Layout 2010-04-07 UGM2 Critical Care 01 Sketch **(A52701503 - UGM2 Critical Care 01 Sketch - 07 April 2010 – Bundle 43, Volume 4, Page 1419)** was prepared to respond to the Critical Care user comments. A series of 3D interior images of the ICU and HDU areas showing layout of the beds and views from the central staff base were also produced to demonstrate the improvements to visibility.

- **UGM 02 Change Status – B (medium change)**

UGM 03 - Date of Meeting 22nd April, 2010

The updated 1:200 department layout was issued prior the UGM 03, which took place on 22nd April, 2010. There were a small number of outstanding Action Points recorded Critical Care - 22 April 2010 (**A52701498 - NSGACL - Critical Care User Group - Attendance Sheet of the meeting on 22nd of April 2010 – Bundle 43, Volume 4, Page 1412),** and the design was accepted by the users subject to addressing the remaining comments, with the Design Acceptance Form returned. Item 7 noting 'isolation room arrangement to be as sketch proposal to improve visibility'. This is captured within 2010-04-22 UGM3 Critical Care 01 Signoff Sketch 2 **(A52701493 - Sketch addressing Bullet point 9 on Notes from 20 April 2010 Critical Care Meeting – Bundle 43, Volume 4, Page 1315).**

There was also further correspondence on one Isolation Bedroom which had an odd shape to achieve natural daylight. 'With regard to Adults Critical Care 'Isolation Bedroom CCW-165' can you please retain the original layout for the bedroom and square off the en-suite so that it will be usable. The clinical users prefer this option as it gives them better visibility from the nurse's station, and they accept the fact that there will be no natural light from the courtyard into the bedroom.' The option with better visibility was subsequently agreed.

- **UGM 03 Change Status** – **SIGNED-OFF**
- **A52701498 - NSGACL - Critical Care User Group - Attendance Sheet of the meeting on 22nd of April 2010 – Bundle 43, Volume 4, Page 1412**
- **A52701499 - NSGH - 1:200 First Floor Plan- Critical Care - 02 September 2009 – Bundle 43, Volume 4, Page 1418**
- **A52701502 - Sketch Answering Query from Bullet Points 17&18 of Tuesday 20 April 2010 Critical Care Feedback – Bundle 43, Volume 4, Page 1416**
- **A52701493 - Sketch addressing Bullet point 9 on Notes from 20 April 2010 Critical Care Meeting – Bundle 43, Volume 4, Page 1315**

Department #37 UGM – Children's Schiehallion, Day Case & TCT [Ward 2A & 2B – RHC]

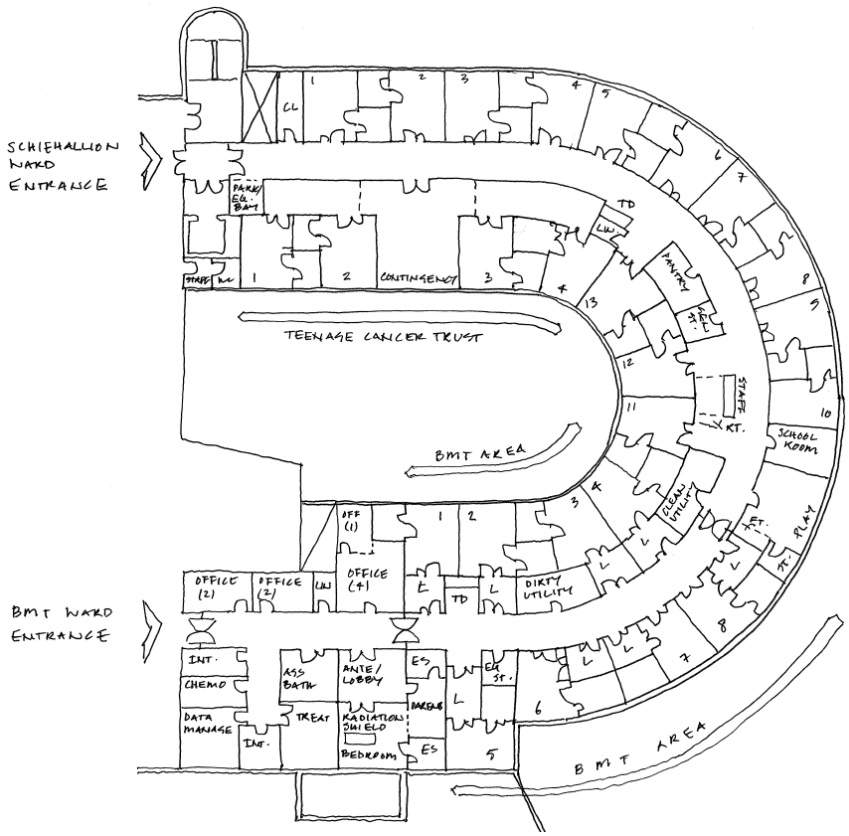
Note that at this stage Ward 2A was known as the Schiehallion Ward, and Ward 2B was the Day Case Unit. The Teenage Cancer Trust (TCT) was allocated ward space within the area known as the Schiehallion Ward.

UGM 01 - Date of Meeting 18th February, 2010

The 1:200 Department Layout prepared as part of the ITPD Bid Submission was issued to the Users in the Briefing Pack UGM 01. The recorded minutes of the meeting were issued by the NHS. ACTION NOTES - HAEMATO-ONCOLOGY **(A52701508 - Design Acceptance Procedure Form Action Points for Haemato-Oncology - 18 February 2010 – Bundle 43, Volume 4, Page 1435).**

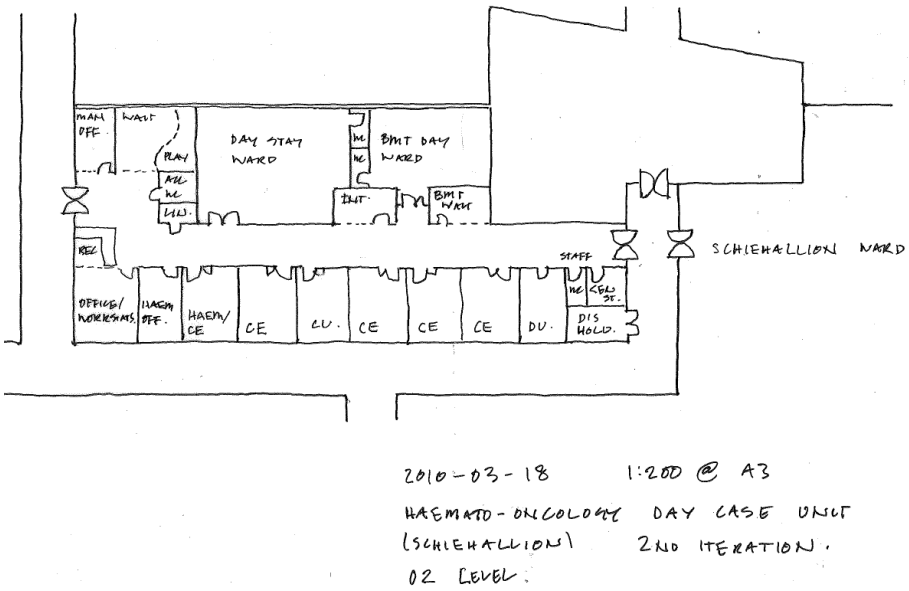
There were extensive user comments during the meeting which were recorded on the Action Points; Mark-Up 1:200 drawing and further detailed comments which were shared after the meeting by Mairi Macleod (Children's Hospital NHS PM). 'New Children' which were comments on the 1:200 design, and 'RP draftSpec_Schiehallion Ward0210' **(A52701509 - Schiehallion Ward, Radiotherapy Treatment Suite RPA comments on the proposed 1:200 layouts (for discussion 18/02/10) – undated – Bundle 43, Volume 4, Page 1439)** which were specific technical comments from the Radiation Protection Advisor for the Radiation Treatment Suite.

A revised sketch 1:200 Department Layout; 2010-03-17 NCH Schiehallion 02 2nd iteration **(A52701511 - NCH Day Case (Schiehallion) Ward 02 2nd Iteration - 17 March 2010 – Bundle 43, Volume 4, page 1442)** was prepared to respond to the Schiehallion Ward/TCT user comments. The significant changes addressed comments on the separation of flows, with the BMT beds now accessed through the south entrance adjacent to Core K, and a lobby created by the additional doors separating the entrance support rooms and Radiation Treatment Suite from the ward. This allowed the BMT area to be 'stand-alone', preventing walk through, and all the Isolation Rooms with lobbies were re-located to this area. The TCT and remaining beds were to be accessed through the north entrance adjacent to Core L. The TCT was also separated from the ward with doors/partitions, to enable it to be identified as a separate stand-alone department.



2010-03-17 NCH Schiehallion 02 2nd iteration **(A52701511 - NCH Day Case (Schiehallion) Ward 02 2nd Iteration - 17 March 2010 – Bundle 43, Volume 4, page 1442)**

A revised sketch 1:200 Department Layout 2010-03-18 NCH Day Case Schiehallion 02 2nd **(A52701510 - NCH Day Case (Schiehallion) Ward 02 2nd Iteration - 18 March 2010 – Bundle 43, Volume 4, Page 1441).** It was prepared to respond to the Day Case user comments. The main comments of note swapped the Day Case and BMT Day Wards, provided partitions and a door to the BMT wait and added the additional ensuite WC which was required for the BMT ward.



2010-03-18 NCH Day Case Schiehallion 02 2nd Iteration **(A52701510 - NCH Day Case (Schiehallion) Ward 02 2nd Iteration - 18 March 2010 – Bundle 43, Volume 4, Page 1441)**

- **UGM 01 Change Status (Ward/TCT) - C (severe / significant change)**
- **UGM 01 Change Status (Day Case) - B (medium change)**
- **A52701508 - Design Acceptance Procedure Form Action Points for Haemato-Oncology - 18 February 2010 – Bundle 43, Volume 4, Page 1435**
- **A52701513 - 1:200 Second Floor Plan - NCH Schiehallion Ward/ Day Case Unit/ Theatres And Anaesthetics Service Offices - 18 February 2010 – Bundle 43, Volume 4, Page 1458**
- **A52701511 - NCH Day Case (Schiehallion) Ward 02 2nd Iteration - 17 March 2010 – Bundle 43, Volume 4, Page 1442**
- **A52701507 - Schiehallion Unit, New Children's Hospital Comments from Nan D McIntosh - 16 February 2010 – Bundle 43, Volume 4, Page 1437**
- **A52701537 – Fourth Floor Plan - NSGH Higher Acuity Renal Ward / Renal Ward – Bundle 43, Volume 5, Page 15**

UGM 02 - Date of Meeting 16th April, 2010

The updated 1:200 department layout was issued prior the UGM 02, which took place on 16th April, 2010. The recorded minutes of the meeting were issued by the NHS. ACTION NOTES - HAEMATO-ONCOLOGY 2ND

DESIGN REVIEW **A52701535 - Design Acceptance Procedure Form - Action Points - 2nd Design Review Meeting – 16 April 2010 – Bundle 43, Volume 4, Page 1496**

The majority of the UGM 01 comments were addressed in the updated design. The Day Case layout was agreed as acceptable in the meeting. Further work was required to the main Schiehallion ward for some support rooms, with the main issue of note related to the Radiation Suite.

- **UGM 02 Change Status – B (medium change)**
- **A52701535 - Design Acceptance Procedure Form - Action Points - 2nd Design Review Meeting - 16 April 2010 – Bundle 43, Volume 4, Page 1496**
- **A52701618 – Second Floor Plan, NCH Schiehallion Ward/Day Case Unit/Theatres and Anesthetics Service Offices Rev. 04 Bundle 43, Volume 5, Page 720**
- **A52701610 – NCH Sciehallion Ward and Day Case Unit Sketch 1:200 and A2 - Bundle 43, Volume 5, Page 632.**

UGM 03 - Date of Meeting 17th May, 2010

The updated 1:200 department layout was issued prior the UGM 02, which took place on 17th May, 2010. The recorded minutes of the meeting were issued by the NHS. ACTION NOTES - HAEMATO-ONCOLOGY 170510 **(A52701506 - Design Acceptance Procedure Form - Action Points for Haemato-Oncology - 17 May 2010 – Bundle 43, Volume 4, Page 1434).**

It should be noted that only 1 comment remained, which was to swap a store and staff WC. However, during his update following the completion of the Children's Hospital 1:200 UGMs Jonathan Hendrick, our Department Lead noted the following;

'2010-05-17 Schiehallion Ward – signed off subject to a minor drawing change, switching a wc and general store. However, this user group is refusing to sign off the drawing for operational reasons. They feel they are not getting the same accommodation as they have now.'

A further email response from Jonathan on the status of the sign-off record drawings on 22/06/2010 was as follows;

'Schiehallion, Day Case, TCT – the users refused to sign any drawings for operational reasons as they were not happy with their SOA. Mairi was to get signatures from the users or Directorate.'

The drawing NA-xx-02-PL-252-402_07 **(A52701512 - NSGH - 1:200 Second Floor Plan, NCH Schiehallion Ward/Day Case Unit/ Theatres and Anaesthetics Services Offices - 02 September 2009 – Bundle 43, Volume 4, Page 1443**) was updated to address the final comments from the UGM and issued to as a record copy to the NHS Board and Multiplex on 16/07/2010 on Aconex-NA-TRANSMIT-000105-Record Drawings from final 1-200 UGM comments & signoff **A52701611 – Aconex - NSGH - Adults & Children's - Record Drawings from final 1:200 UGM comments & signoff Bundle 43, Volume 5, Page 638**. I could not locate the user signed record copy but understood this was obtained by Mairi Macleod following additional internal NHS meetings.

Revision 09 was subsequently signed and approved by the NHS Board, returned to NA-IBI on Aconex-BMCE-TRANSMIT-006859 **(A52701427 - Mail from Glasgow DocControl - Brookfield Multiplex Construction Europe to David Bower and others - 1:200 Department Plan Drawings for RDD Review Returned with Comments and Review Status - 25 November 2011 – Bundle 43, Volume 4, Page 655)** on 25/11/2011.

- **UGM 03 Change Status – SIGNED-OFF** (Note this occurred during the 1:50 Room Type stage)

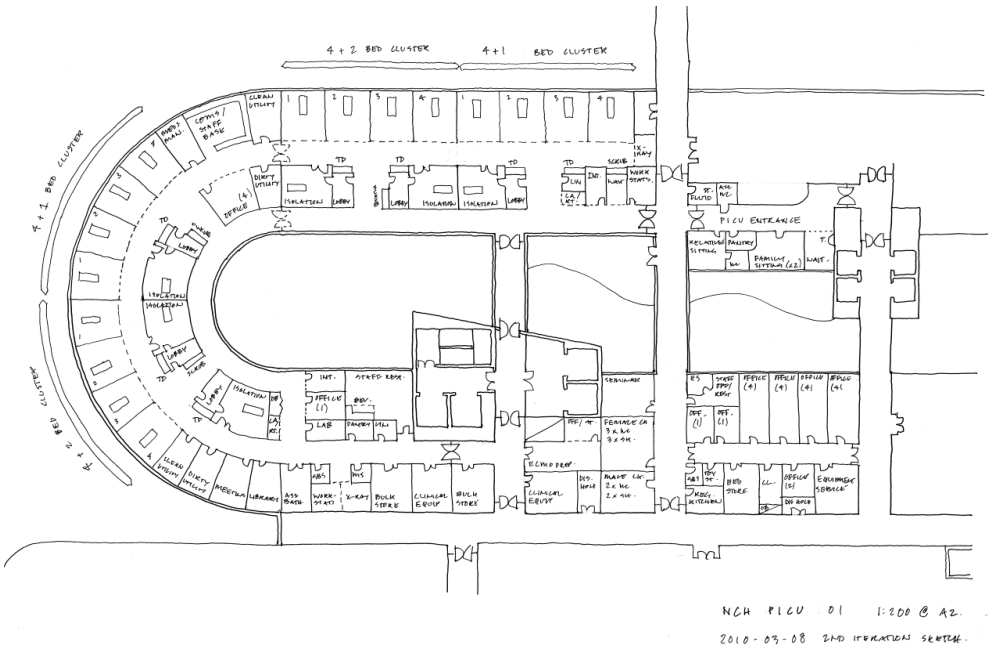
Department #45 UGM – Children's Critical Care – [PICU – RHC]

UGM 01 - Date of Meeting 25th February, 2010

The 1:200 Department Layout prepared as part of the ITPD Bid Submission was issued to the Users in the Briefing Pack UGM 01. 2010-02-17 - 1st Design Review Meeting 25th February @ 1.30 **(A52701409 - Email from Allyson Hirst to Andrew McInture and others - 1st Design Review Meeting 25th February at 1.30 - 17 February 2010 – Bundle 43, Volume 4, Page 1474)**

The User Group Remit identified Andrew McIntyre and Jennifer Scarth as the designated Group Lead (s).

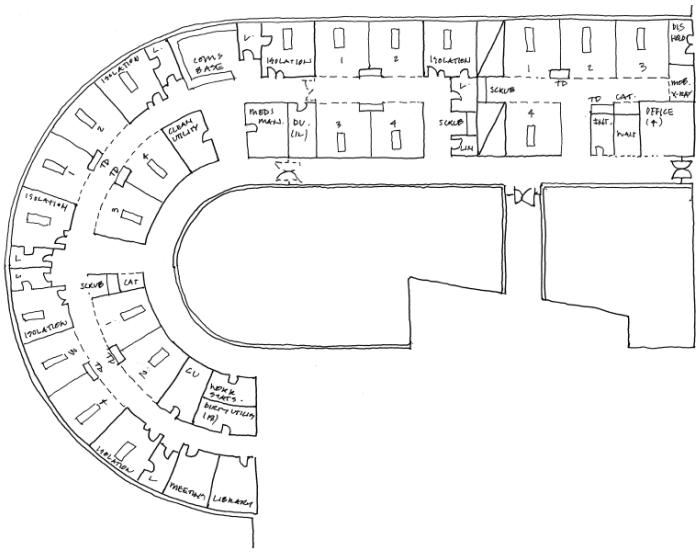
The recorded minutes of the meeting were issued by the NHS. ACTION NOTES – PICU **(A52701518 - PICU Design Acceptance Procedure Form Action Points - 25 February 2010 – Bundle 43, Volume 4, Page 1465).** There were extensive user comments during the meeting which were recorded on the Action Points, Mark-Up 1:200 drawing. 2010-02-25 UGM1 Critical Care PICU 01 Mark Up **(A52701525 - UGM1 Critical Care PICU 01 Mark Up - 25 February 2010 – Bundle 43, Volume 4, Page 1473)**
A revised sketch 1:200 Department Layout 2010-03-08 NCH PICU 01 2nd Iteration **(A52701521 - NCH PICU 01 2nd Iteration - 08 March 2010 – Bundle 43, Volume 4, Page 1470)** was prepared to respond to the PICU users' comments. There were significant changes required, notably 'Item 4. Rooms to be split as 6 isolation rooms and 4 x 4 bed rooms.' This needs to be reviewed from an infection control point of view'; Item 9 'Architect to look at redesigning isolation lobby to put it at the side of the room',



2010-03-08 NCH PICU 01 2nd Iteration **(A52701521 - NCH PICU 01 2nd Iteration - 08 March 2010 – Bundle 43, Volume 4, Page 1470)**

A further revised sketch 1:200 Department Layout 2010-03-12 NCH PICU BEDS 01 2nd Iteration **(A52701514 - NCH PICU Beds 01 - 12 March 2010**

– Bundle 43, Volume 4, Page 1459) was prepared to respond to the ZBP requirements for the location of mechanical risers.



2010-03-12 NCH PICU BEDS 01 2nd Iteration **(A52701521 - NCH PICU 01 2nd Iteration - 08 March 2010 – Bundle 43, Volume 4, Page 1459)**

The significant changes addressed comments on the clustering of the rooms, and the locations of the isolation lobbies.

- **UGM 01 Change Status - C (severe / significant change)**

UGM 02 - Date of Meeting 24th March, 2010

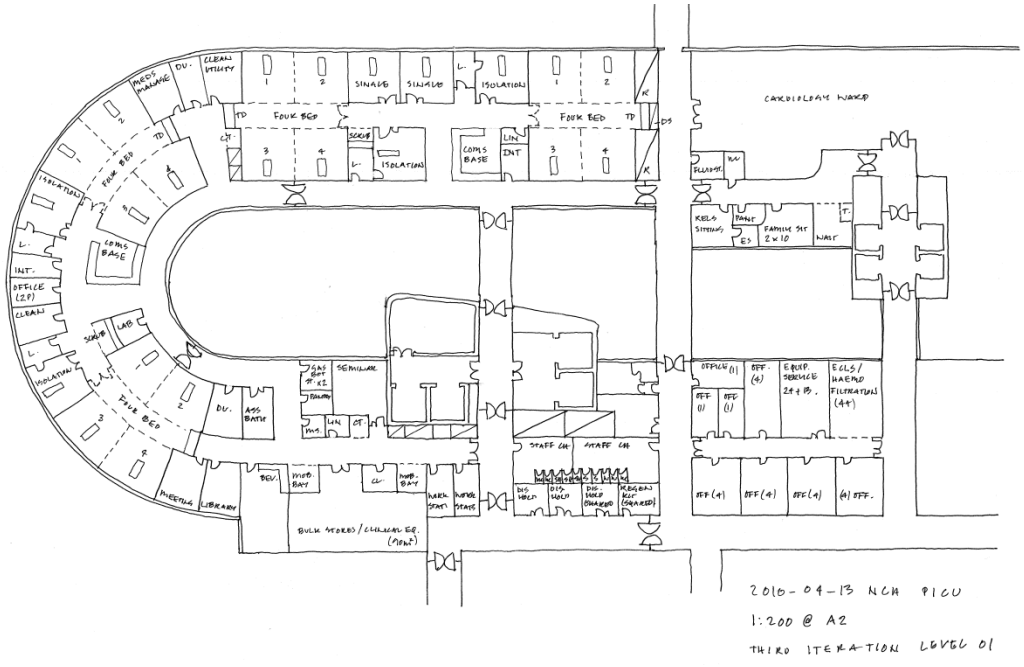
The updated 1:200 department layout was issued prior the UGM 02, which took place on 24th March, 2010. NA-xx-01-PL-252-403_02 **(A52701517 - NSGH - 1:200 First Floor Plan PICU, Cardiology Ward/Support/MDU and Special Feeds - 02 September 2009 – Bundle 43, Volume 4, Page 1462).** The recorded minutes of the meeting were issued by the NHS. ACTION NOTES – PICU **(A52701518 - PICU Design Acceptance Procedure Form Action Points - 25 February 2010 – Bundle 43, Volume 4, Page 1465)** 24 March 2010.

There were still extensive user comments during the meeting which were recorded on the Action Points, Mark-Up 1:200 drawing. 2010-03-24-UGM2 NCH PICU 01 Mark up **(A52701522 - UGM2 NCH PICU 01 Mark up of the 1:200 First Floor Plan PICU, Cardiology Ward/Support/MDU and Special Feeds - 02 September 2009 – Bundle 43, Volume 4, Page 1468)**

Comments of note include;

'Item 5 - Lobbies from 2 Isolation Rooms to be reallocated to the Central Staff Base. This leaves 4 Isolation Rooms with lobbies and 2 Single Bedrooms.'

A revised sketch 1:200 Department Layout 2010-04-13 NCH PICU 01 3rd Iteration Sketch **(A52701519 - NCH PICU 01 3rd Iteration Sketch - 13 April 2010 – Bundle 43, Volume 4, Page 1467)** was prepared to respond to the PICU user comments.



2010-04-13 NCH PICU 01 3rd Iteration Sketch **(A52701521 - NCH PICU 01 2nd Iteration - 08 March 2010 – Bundle 43, Volume 4, Page 1467)**

- **UGM 02 Change Status - C (severe / significant change)**
- ACTION NOTES – PICU **(A52701518 - PICU Design Acceptance Procedure Form Action Points - 25 February 2010 – Bundle 43, Volume 4, page 1465)** 24 March 2010
- 2010-03-24-UGM2 NCH PICU 01 Mark up **(A52701522 - UGM2 NCH PICU 01 Mark up of the 1:200 First Floor Plan PICU, Cardiology Ward/Support/MDU and Special Feeds - 02 September 2009 – Bundle 43, Volume 4, Page 1468)**

UGM 03 - Date of Meeting 26th May, 2010

The updated 1:200 department layout was issued prior the UGM 03, which took place on 26th May, 2010. NA-xx-01-PL-252-403_06. The recorded minutes of the meeting were issued by the NHS. ACTION NOTES – PICU

(A52701515 - PICU Design Acceptance Procedure Form Action Points - 24 March 2010 – Bundle 43, Volume 4, Page 1460) 24 March 2010, supported with the mark-up 1:200 drawing 2010-05-26 NCH UGM3 PICU 01 Markup **(A52701520 - NCH UGM3 PICU 01 Markup of the 1:200 First Floor Plan PICU, Cardiology Ward/Support/MDU and Special Feeds - 26 May 2010 - Bundle 43, Volume 4, Page 1469).**

The 1:200 department layout was signed-off following the UGM on or around 25th June, 2010. We did not review a copy of the NHS Design Acceptance Sign-Off Form.

- **UGM 03 Change Status – SIGNED-OFF**
- **A52701523 - 1:200 NCH Post UGM3 Critical Care (PICU) 01 Signoff - 25 June 2010 – Bundle 43, Volume 4, Page 1471**

Isolation rooms

The isolation room designs were reviewed within the Department User Group they were located within. The 1:200 layouts including the location and size/shape of the isolation rooms were approved by the relevant department user group.

For the Adult Hospital there was an additional Isolation Rooms Briefing Document shared with the Bidders. NSGACL Adult Isolation Rooms_iss1_rev (090604 tender addendum_TAD-00018) **(A52701479 - NSGACL Update on the Isolation Rooms for the New South Glasgow (Adult) Hospital - undated – Bundle 43, Volume 4, Page 1167).**

The Isolation Room locations would have initially followed the SoA briefing document, with amendments reviewed and agreed within the respective Department User Group meeting. The sign-off of the number, location and shape of the Isolation Rooms therefore took place within the Department User Groups meetings.

Level 00 - Children's Hospital – Observation Ward

There was no detailed description of the Isolation Room design requirements contained within the Client's Brief - Clinical Output Specifications for the Observation Ward Department. NSGACL EMERGENCY DEPARTMENT

NCH_iss1_rev **(A52701491 - NSGH - Clinical Output Specification for Emergency Department - undated – Bundle 43, Volume 4, Page 1293).**

The SoA provided the requirement for 2 single bedrooms to have air lock lobbies (page 8 NSGACL Schedule of Accommodation NCH_iss1_rev **(Please refer to Bundle 23, Document 92, Page 911)** and Observation Ward 'tab' of the excel NCH SoA ER With ADB Codes) (**A52701410 – Observation Ward Bundle 43, Volume 5, Page 967**).

11	**Bed Area**					
12	Single bedroom: Children/young people, with relatives overnight stay	18	16.5	297.0	B1802	
13	Isolation single bedroom: Children/young people, with relatives overnight stay	2	16.5	33.0	B1802	
14	Lobby: air lock to bedroom	2	7.0	14.0	G0507	
15	Shower, WC & wash: accessible, wheelchair assisted	20	4.5	90.0	V1610	As per HBN 00-02

NCH SoA ER With ADB Codes (**A52701410 – Observation Ward Bundle 43, Volume 5, Page 967**).

These linked to the ITPD ADB Sheets provided in the ERs NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**).

ADB	Room Environmental Data	B1802

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1802	Single bedroom: Children/young people, with relatives overnight stay
Room Number:		**Revision Date:** 23/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	21	Winter temperature (degC): up to 24, independent control
Summer Temperature (DegC):	23	
Mechanical Ventilation (Supply ac/hr):		Mechanical ventilation (supply): Refer to HBN text.
Mechanical Ventilation (Extract ac/hr):		Mechanical ventilation (extract): In-patient barrier nursing. Refer to HBN text.
Pressure Relative to Adjoining Space:		
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		
General Notes:		Pressure relative: WC NEG to bedroom.

(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 1524)

Refer to page 15/16 of my Narrative for a description of the ADB room data sheet for GEN-SGH - Generic Rooms - B1802 - Single bedroom: Children/young people, with relatives overnight stay; and page 18/19 for GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing. In the case of the Children's Observation Ward reference can also be made to the Exemplar Design - NSGACL-PD-

BMJ-L(00)00-X-OW-001 - Observation Ward Childrens_iss1_rev1 **(A52701477 - NSGH - 1:200 Observation Ward (Children's) - 07 May 2009 – Bundle 43, Volume 4, Page 1130).**

ADB	Room Data Sheet	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

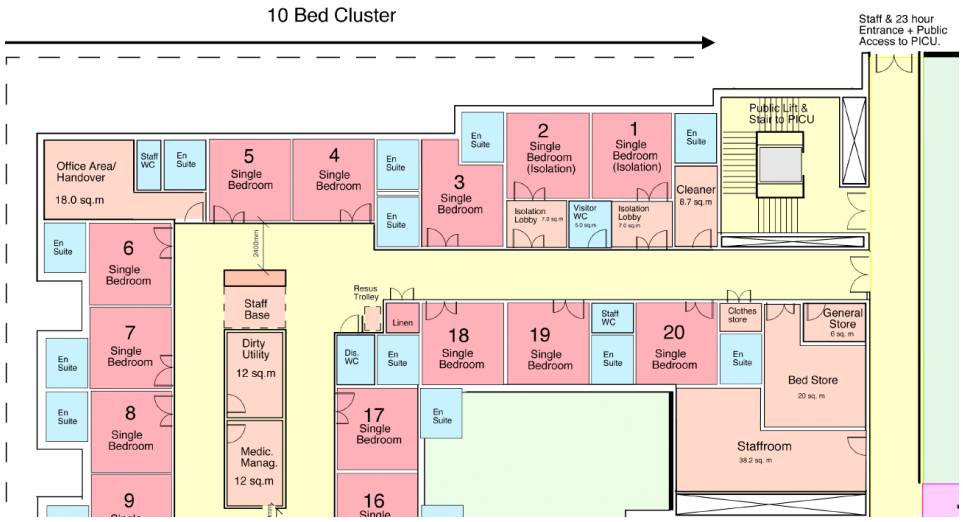
Activities:	1) Clinical hand washing. 2) Dispensing disposable aprons. 3) Dispensing disposable gloves. 4) Disposal of clinical waste. 5) Disposal of non-clinical items.			
Personnel:	2 x Persons			
Planning Relationships:	Direct access to single bedroom.			
Space Data:	**Area (m²):**	6.00	**Height (mm):**	2,700
Notes:	Source and protective isolation. For ventilated lobby details see HBN Isolation facilities in acute settings. The use of personal protective equipment (PPE) will be determined by local infection control policy.			

ADB	Room Environmental Data	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	20	
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:	POS	
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 1655-1656**)

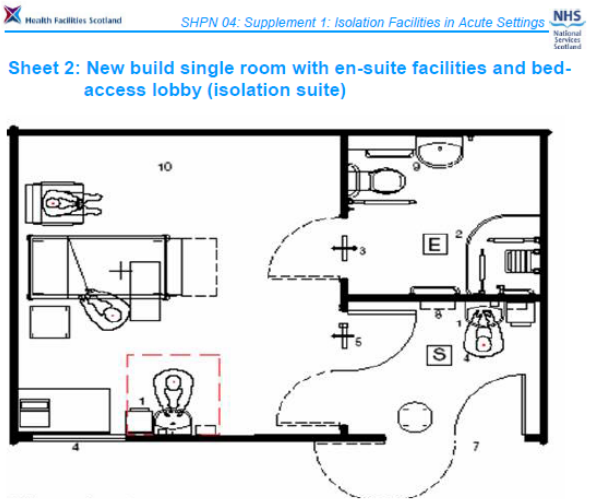


Exemplar Design - NSGACL-PD-BMJ-L(00)00-X-OW-001

Observation Ward Childrens_iss1_rev1 **A52701477 – NSGH – 1:200 Observation Ward (Children's) – 07 May 2009 – Bundle 43, Volume 4, Page 1130**

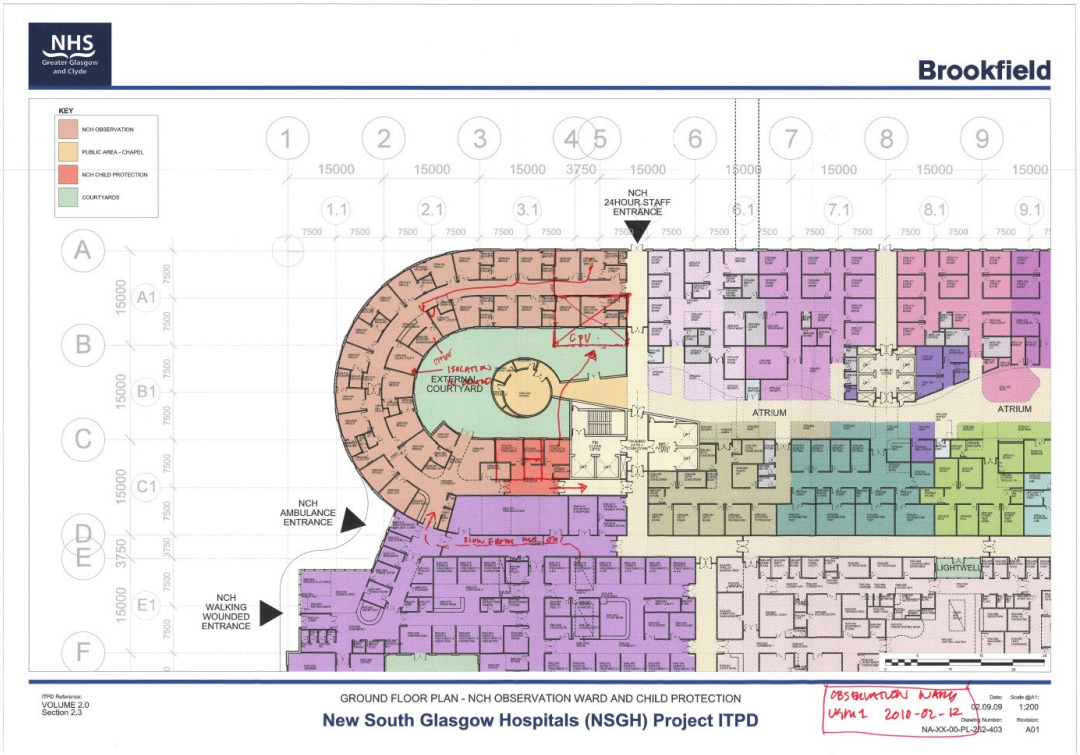
There are 2 positive pressurized single isolation rooms, with access via the gowning lobby. This full 'suite' includes the positive pressure gowning lobby, and negative pressure ensuite.

The proposed design of the 2 isolation rooms has not changed on the 1:200 department plan from the ITPD bid submission through to the user sign-off. Whilst the Exemplar Design pictured above has a central located lobby, the proposed layout aligned more closely with the new build single room diagram on page 24 SHPN 04-Supplement 1.

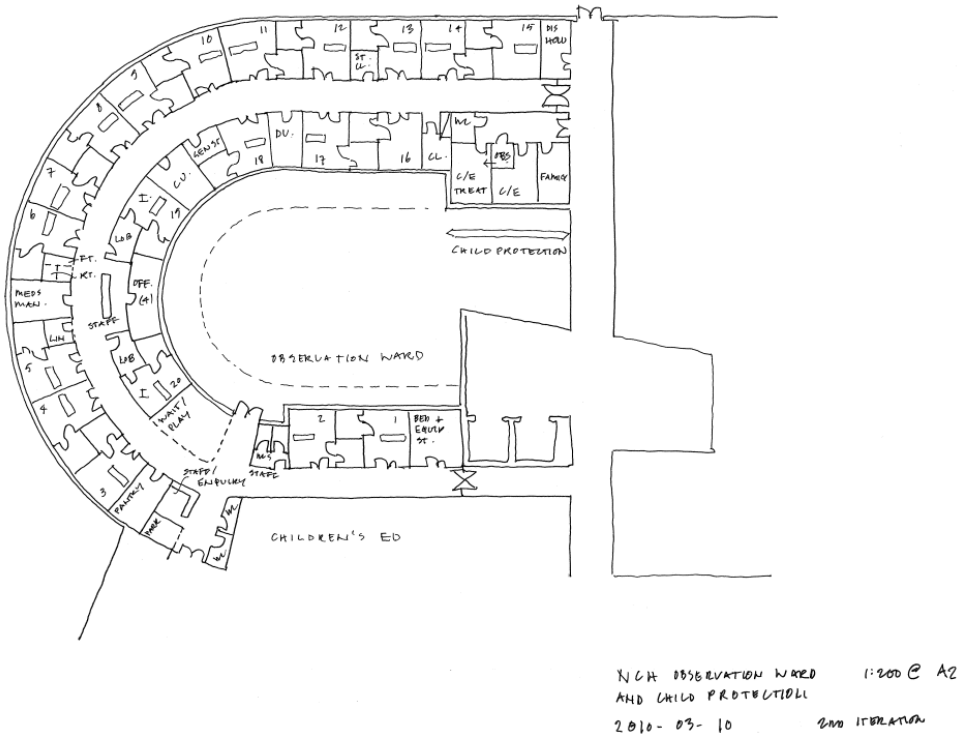


Page 24 SHPN 04-Supplement 1 **(A33064790 – Bundle 43, Volume 6, Page 1129)**

Following UGM1 comments, which were captured on 2010-02-12-UGM 1 Observation Ward 00 Mark Up **(A52701494 - NSGH Ground Floor Plan Observation - NCH Observation Ward and Child Protection - 12 February 2010 – Bundle 43, Volume 4, Page 1316),** the location of the isolation rooms moved centrally to be closer to the staff base, and to allow the Child Protection area to be closer to the 24hr staff entrance. This design development change can be seen on the sketch 2010-02-10 NCH Obs Ward & Child Protection 2nd Iteration **(A52701484 - NCH Observation Ward and Children Protection - 10 March 2010 – Bundle 43, Volume 4, Page 1168).**



2010-02-12-UGM 1 Observation Ward 00 Mark Up **(A52701494 - NSGH Ground Floor Plan Observation - NCH Observation Ward and Child Protection – Bundle 43, Volume 4, Page 1316)**



2010-02-10 NCH Obs Ward & Child Protection 2nd Iteration Iteration **(A52701484 - NCH Observation Ward and Children Protection - 10 March 2010 – Bundle 43, Volume 4, Page 1168)**

Level 01 – Children's Hospital – Critical Care (PICU)

There was no detailed description of the Isolation Room design requirements contained within the Client's Brief - Clinical Output Specifications for the Critical Care Department. NSGACL PICU NCH_iss2_rev **(A52701486 - New Children's Hospital, Clinical Output Specification for Paediatric Intensive Care Unit - Undated – Bundle 43, Volume 4, Page 1182).**

However, it is noted on page 1 that the patient group will include bone marrow transplant and oncology.

The Clinical Services provided include:

General/ emergency intensive care for infants and children (and young adults who are patients of the hospital)

Resuscitation support to inpatient units and emergency department

Post operative intensive care for specialist and general surgical programs

Intensive care support of national paediatric services:

- Cardiac surgery, invasive cardiology and associated cardiology patients
- Complex airway surgery
- Renal medicine and renal transplant services*
- Bone marrow transplant & oncology
- ECMO program
- Vein of Galen service

Intensive Care Transport Service, including advice and support to other sites managing seriously unwell patients

Provision of 'high level' High Dependency Care for all patient groups

* Provision of dialysis requires regulated pressure water and drainage services at agreed bed spaces. At present 3 bed spaces are equipped in this way.

Page 1 NSGACL PICU NCH_iss2_rev **(A52701486 - New Children's Hospital, Clinical Output Specification for Paediatric Intensive Care Unit - Undated – Bundle 43, Volume 4, Page 1182).**

The Schedule of Accommodation (SoA) brief (page 18 NSGACL Schedule of Accommodation NCH_iss1_) **(Bundle 23, Document 92, Page 908**) was to provide 6 isolation rooms with positive pressurized gowning lobbies. The Stage 2 SoA confirmed the ADB room briefing codes on the Critical Care 'tab' of the excel NCH SoA ER With ADB Codes **(A52701410 – NCH - Stage 2 Schedule of Accommodation Bundle 43, Volume 6, Page 54)**

21	**Clinical areas**					
22	Critical care bed area: single room; Isolation (access via gowning lobby)	6	25.5	153.0	B1602	
23	Gowning lobby: single bedroom	6	7.0	42.0	G0507	

NCH SoA ER With ADB Codes **(Bundle 23, Document 92, Page 908**)

These linked to the ITPD ADB Sheets provided in the ERs NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single**

Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 4, Page 1515).

ADB	Room Environmental Data	B1602

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1602	Isolation single bedroom: Critical care
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	27	Summer and winter (local control) temperature control: 16 to 27 deg.C
Summer Temperature (DegC):	16	
Mechanical Ventilation (Supply ac/hr):	6.0	Mechanical ventilation (supply): To provide source or protective isolation. Mechanical ventilation (extract): To provide source or protective isolation.
Mechanical Ventilation (Extract ac/hr):	6.0	
Pressure Relative to Adjoining Space:	BAL	Final filtration: EU10/11 to suit clinical requirements. Humidity: 40-60
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):	60	

(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 4, Page 1515)

Refer to page 14-15 of my Narrative for a description of the ADB room data sheet for GEN-SGH - Generic Rooms - B1602 - Isolation single bedroom: Critical care

ADB	Room Data Sheet	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

Activities:	1) Clinical hand washing. 2) Dispensing disposable aprons. 3) Dispensing disposable gloves. 4) Disposal of clinical waste. 5) Disposal of non-clinical items.			
Personnel:	2 x Persons			
Planning Relationships:	Direct access to single bedroom.			
Space Data:	**Area (m²):**	6.00	**Height (mm):**	2,700
Notes:	Source and protective isolation. For ventilated lobby details see HBN Isolation facilities in acute settings. The use of personal protective equipment (PPE) will be determined by local infection control policy.			

ADB	Room Environmental Data	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	20	
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:	POS	
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 4, Page 1655)

and page 18/19 for GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing.

The approved 1:200 department plan (2010-06-25 NCH Post UGM3 Critical Care (PICU) 01 Signoff) **(A52701523 - 1:200 NCH Post UGM3 Critical Care (PICU) 01 Signoff - 25 June 2010 – Bundle 43, Volume 4, Page 1471)** contains a total of 4 isolation rooms within the design, with lobbies to the side of the isolation rooms; this aligned with the new build single room diagram on page 24 SHPN 04-Supplement 1, albeit there were no ensuites required. Note the bed access was also later amended to be through the lobby, and the door from the isolation room to the corridor was omitted. During UGM02 the users requested the omission of 2 Isolation Room lobbies from the design, captured on ACTION NOTES – PICU **(A52701515 - PICU Design Acceptance Procedure Form Action Points - 24 March 2010 – Bundle 43, Volume 4, Page 1460;**

'Item 5 - Lobbies from 2 Isolation Rooms to be reallocated to the Central Staff Base. This leaves 4 Isolation Rooms with lobbies and 2 Single Bedrooms.'
On the UGM tracked Schedule of Accommodation (SoA) managed by Tribal (PICU SoA Markup CUG 2 v2) **(A52701516 - PICU Schedule of Accommodation Markup CUG - April 2009 – Bundle 43, Volume 4, Page 1463)** the 6 number Gowning lobbies: single bedrooms are noted as 'reduce to 4 x lobbies, use the released area of 14m2 for the staff bases'.

Level 01 – Children's Hospital – Cardiology

There was no detailed description of the Isolation Room design requirements contained within the Client's Brief - Clinical Output Specifications for the Cardiology Department, NSGACL Cardiac Services NCH_iss1_rev **(A52701485 - New Children's Hospital, Clinical Output Specification for Cardiac Services – Undated – Bundle 43, Volume 4, Page 1169).**
The SoA provided the requirement for 2 single bedrooms to have air lock lobbies.

	A	B	C	D	E	F
1	**CARDIOLOGY (14 BEDS)**					
2	**Description**	**Qty**	**Unit Area m²**	**Total Area m²**	**ADB Code**	**Comments**
3	**Bed Area**					
4	Single bedroom: Children/young people, with relatives overnight stay	10	16.5	165.0	B1802	
5	Lobby: air lock to bedroom	2	7.0	14.0	G0507	

NCH SoA ER With ADB Codes

The Schedule of Accommodation (SoA) brief (page 16 NSGACL Schedule of Accommodation NCH_iss1_) **(Please refer to Bundle 23, Document 92, Page 919)** was to provide 2 of the single bedrooms with air lock lobbies. The Stage 2 SoA confirmed the ADB room briefing codes on the Cardiology 'tab' of the excel NCH SoA ER With ADB Codes **(A52701410 – NCH - Stage 2 Schedule of Accommodation Bundle 43, Volume 6, Page 54).**

These linked to the ITPD ADB Sheets provided in the ERs NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**).

ADB	Room Environmental Data	B1802

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1802	Single bedroom: Children/young people, with relatives overnight stay
Room Number:		**Revision Date:** 23/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	21	Winter temperature (degC): up to 24, independent control
Summer Temperature (DegC):	23	
Mechanical Ventilation (Supply ac/hr):		Mechanical ventilation (supply): Refer to HBN text.
Mechanical Ventilation (Extract ac/hr):		Mechanical ventilation (extract): In-patient barrier nursing. Refer to HBN text.
Pressure Relative to Adjoining Space:		
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		
General Notes:		Pressure relative: WC NEG to bedroom.

Refer to page 15-16 of my Narrative for a description of the ADB room data sheet for GEN-SGH - Generic Rooms - B1802 - Single bedroom: Children/young people, with relatives overnight stay; and page 18/19 for GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing.

ADB	Room Data Sheet	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

Activities:	1) Clinical hand washing. 2) Dispensing disposable aprons. 3) Dispensing disposable gloves. 4) Disposal of clinical waste. 5) Disposal of non-clinical items.			
Personnel:	2 x Persons			
Planning Relationships:	Direct access to single bedroom.			
Space Data:	**Area (m²):**	6.00	**Height (mm):**	2,700
Notes:	Source and protective isolation. For ventilated lobby details see HBN Isolation facilities in acute settings. The use of personal protective equipment (PPE) will be determined by local infection control policy.			

ADB	Room Environmental Data	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	20	
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:	POS	
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing

There are 2 positive pressurized single isolation rooms, with access via the gowning lobby. This full 'suite' includes the positive pressure gowning lobby, and negative pressure ensuite.

The design of the 2 isolation rooms has not changed on the 1:200 department plan from the ITPD bid submission to the user sign-off (2010-05-27 N/NCH UGM3 Cardiology Ward 01 Signoff) **(A52701406 – First Floor Plan, NCH Critical Care (Picu) Cardiology Ward/Support/MDU and Special Feeds Bundle 43, Volume 5, Page 958).** The layout aligns with the new build single room diagram on page 24 SHPN 04-Supplement 1. Note the bed access was also later amended to be through the lobby, and the door from the isolation room to the corridor was omitted.

Level 01 – Adult's Hospital – Critical Care

The original brief NSGACL Adult Isolation Rooms_iss1_rev **(A52701479 - NSGACL Update on the Isolation Rooms for the New South Glasgow (Adult) Hospital – undated – Bundle 43, Volume 4, Page 1167)** requested 10 negatively pressurized sealed rooms with ante-rooms, 8 with ensuites and 2 further without lobbies.

The SoA brief, page 17/18 NSGACL Schedule of Accommodation NSG_iss1_rev **(A52701492 - NSGACL Schedule of Accommodation - OBC SoA - ER Version updated April 2009 – Bundle 43, Volume 4, Page 1241)** provided the requirement for 10 critical care isolation single beds with gowning lobbies, 8 of which were to have ensuites.

CRITICAL CARE: ICU/HDU (Medical & Surgical) AREAS					
Clinical areas					
Critical care bed area: single room; Isolation (access via gowning lobby)	10	26.0	260.0	B1602	2 beds in each of 5 "pods" (Including both ICU "pods")
Gowning lobby: single bedroom	10	7.0	70.0	G0507	2 beds in each of 5 "pods" (Including both ICU "pods")
Single Room/Equivalent bed space	49	26.0	1274.0	B1602	
Patients en-suite wc & wash double assist	8	4.5	36.0	V1610	(as per HBN 00-02) En-suite to the 6 single rooms with isolation lobbys in HDU "pods" and 2 further rooms in the remaining HDU pod with no associated gowning lobby

The Stage 2 SoA confirmed the ADB room briefing codes on the Critical Care 'tab' of the excel 090430 SoA_NSGH_ER_version – TA

These linked to the ITPD ADB Sheets provided in the ERs NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**).

ADB	Room Environmental Data	B1602

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1602	Isolation single bedroom: Critical care
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	27	Summer and winter (local control) temperature control: 16 to 27 deg.C
Summer Temperature (DegC):	16	
Mechanical Ventilation (Supply ac/hr):	6.0	Mechanical ventilation (supply): To provide source or protective isolation. Mechanical ventilation (extract): To provide source or protective isolation.
Mechanical Ventilation (Extract ac/hr):	6.0	
Pressure Relative to Adjoining Space:	BAL	Final filtration: EU10/11 to suit clinical requirements. Humidity: 40-60
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):	60	

Refer to page 14-15 of my Narrative for a description of the ADB room data sheet for GEN-SGH - Generic Rooms - B1602 - Isolation single bedroom: Critical care.

ADB	Room Data Sheet	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

Activities:	1) Clinical hand washing. 2) Dispensing disposable aprons. 3) Dispensing disposable gloves. 4) Disposal of clinical waste. 5) Disposal of non-clinical items.			
Personnel:	2 x Persons			
Planning Relationships:	Direct access to single bedroom.			
Space Data:	**Area (m²):**	6.00	**Height (mm):**	2,700
Notes:	Source and protective isolation. For ventilated lobby details see HBN Isolation facilities in acute settings. The use of personal protective equipment (PPE) will be determined by local infection control policy.			

And page 18/19 for GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing.

ADB	Room Environmental Data	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	20	
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:	POS	
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing

A further detailed description of the design requirements was contained within the Client's Brief - Clinical Output Specifications for the Critical Care Department, refer to pages 10,11 and 13 NSGACL_Critical_Care_NSG_iss1_rev **(Please refer to Bundle 23, Document 29, Page 325).**

8. ACCOMMODATION REQUIREMENTS

8.1 Intensive Care (Level 3)

Critical Care Bed Area: single room: Isolation (access via gowning lobby)

Single rooms and lobbies are required for isolation and should be rectangular in shape (minimum area without lobby of 26m^2) with entrances wide enough to allow bulky equipment to pass easily e.g. mobile imaging machine – at least a door and a half. The door opening should also be sufficient to allow the passage of the bed and equipment. An island bed layout is preferred to enable good staff access around the patient and permit space for procedures to be undertaken from all sides. A clinical hand wash basin (CHWB) with automatic taps should be provided in each room. An overhead hoist is required for lifting patients and the recommended ceiling height is therefore 3m. Windows and natural light are essential in all rooms to aid patient orientation. Outside views are desirable and the windows should be large enough to enable patients to view the outside.

Each bed requires a ceiling or floor mounted medical supply unit to provide sufficient socket outlets and connection to an UPS system for the wide range of equipment in use and to allow unimpeded access to the patient by all staff. In selecting a medical supply unit it is important to ensure that it is ergonomically satisfactory for all staff access. Water proof floor sockets should also be provided.

Equipment may include syringe and volumetric pumps, an electric bed, a ventilator, an air mattress, a dialysis/filter machine, humidifier, suction machine and a television. The medical supply unit supplies medical gases and electrical socket outlets thereby allowing unimpeded access to the patient by all staff. Five rooms should be plumbed for use of a dialysis machine which should be distributed between the ICU and SHDU and HDU components of the department.

Each bed space requires the following equipment located within a medical supply unit adjacent to the bed head:

multiparameter monitoring
ventilation and humidification equipment
infusion and syringe pumps

2 x oxygen outlets
2 x 4 bar air outlets
feeding pump
blood warmer (2 per "pod" of 10 beds)
drugs storage space

Additional equipment required is an electric bed capable of chair position and Trendelenberg position and a pressure relieving mattress, a clinical hand wash basin, a PC, telephone for internal and external calls, a TV socket and nurse call system.

Gowning lobbies require a clinical hand wash basin (CHWB), plastic apron dispenser/gloves and disposal facility. Ceilings and windows should be sealed. Doors should be tight fitting with seals to minimise air transfer.

Other equipment used occasionally at the bedside includes an EEG machine, mobile imaging, ultrasound/echocardiography, endoscopy, defibrillators and haemodialysis/ haemofiltration machines.

Storage space is required for small amounts of medical and surgical supplies for the treatment of each patient.

Variable overhead bed head lighting is also required.

Radiation protection - The facility will need to meet all current Scottish Health Planning / Health Building Note on radiological protection issues and Health Board Radiological Protection Officer advice.

100% visual privacy should be maintained at patient level.

Visibility – uninterrupted views of the patient from the communication base is preferred.

Noise reduction and auditory privacy at each bed space.

Materials that are easy to clean thereby reducing the risk of HAI.

Storage space is required for small amounts of medical and surgical supplies for the treatment of each patient.

8.1.2 Medical/Surgical HDU (Level 2)

Critical Care Bed Area: single room: Isolation (access via gowning lobby)

These rooms @ 26m^2 are the same as that described for Intensive care. Potentially they are flexible in that they may also accommodate Level 3 patients if required.

Critical Care Bed Area: single room (no gowning lobby)

These rooms @ 26m^2 are the same as that described for Intensive care. Potentially they are flexible in that they may also accommodate Level 3 patients if required. One "pod" of these rooms (10 rooms) will be equipped to level 3 standard to support clinical flexibility and support a "blurring of the edges" between level 1 and level 2 facilities.

HDU bed area en-suites @ 4.5m^2

En-suites associated with HDU rooms should be configured in the same manner as is described in the generic ward COS, i.e. Utilising the chamfered shower as described in HBN 00-02 and "folding wall" principle that allows space to be "borrowed" from both the bed and en-suite area as required. All en-suites should be equipped with showers, WC's and WHB's and should all be able to support "dual assistance" being delivered.

Single room/single room bed area

These rooms and/or bed spaces @ 26m^2 are as described for ITU.

The approved 1:200 department plan (NA-xx-01-PL-252-414_06) **A52701405 – First Floor Plan, NSGH Critical Care Rev. 06 Bundle 43, Volume 5, Page 956** reflects a slightly different arrangement, albeit the total of 10 isolation rooms are accounted for within the design.

There are 6 positive pressurized single isolation rooms, with access via the gowning lobby. This full 'suite' includes the positive pressure gowning lobby, and negative pressure ensuite.

There are a further 4 positive pressurized single isolation rooms, with access via the gowning lobby. However, these do not have an associated ensuite. These are located in the central ICU bed cluster, where the patients are the sickest, most heavily sedated and unlikely to be able to leave their beds to use an ensuite.

There are 2 further rooms noted on the plans as 'Single Isolation', which have an ensuite but no lobby. These rooms were to be designed as 'pressure neutral' to the corridor (balanced supply and extract ventilation) as noted on Aconex-NA-GC-003680-Re Isolation Room CCW-64 **(A52701608 – Aconex - Re: Isolation Room CCW-64 - Bundle 43, Volume 5, Page 633).**

Level 02 – Children's Hospital – Acute Receiving Unit

There was no detailed description of the Isolation Room design requirements contained within the Client's Brief - Clinical Output Specifications for the Renal/Acute Receiving Ward department. (NSGACL Renal NCH_iss2_rev) **(Please refer to Bundle 16, Document 18, Page 1622).**

The Schedule of Accommodation (SoA) brief (page 12 NSGACL Schedule of Accommodation NCH_iss1_) **(A52701442 - NSGACL Schedule of Accommodation - Issue No.4 - April 2009 – Bundle 43, Volume 4, Page 694)** was to provide 2 of the single bedrooms with air lock lobbies.

	A	B	C	D	E	F
1	**ACUTE RECEIVING UNIT (40 BEDS)**					
2	**Description**	**Qty**	**Unit Area m²**	**Total Area m²**	**ADB Code**	**Comments**
3	**Bed Area**					
4	Single bedroom: Children/young people, with relatives overnight stay	32	16.5	528.0	B1802	
5	Lobby: air lock to bedroom	2	7.0	8.0	G0507	
6	Shower, WC & wash: accessible, wheelchair assisted	32	4.5	144.0	V1610	As per HBN 00-02
7	Multi-bed room & day space: Children/young people, 4 beds, with relatives overnight stay	2	68.0	136.0	B2001	
8	Shower, WC & wash: accessible, wheelchair assisted	2	7.5	15.0	V1612	

(A52701442 - NSGACL Schedule of Accommodation - Issue No.4 - April 2009 – Bundle 43, Volume 4, Page 694)

The Stage 2 SoA confirmed the ADB room briefing codes on the ARU 'tab' of the excel NCH SoA ER With ADB Codes **(A52701410 – NCH - Stage 2 Schedule of Accommodation Bundle 43, Volume 6, Page 54).**

These linked to the ITPD ADB Sheets provided in the ERs NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**); **(A52700892 - NSGH - Generic ADB Room Data Sheets Bundle 43, Volume 4, Page 1498)**.

ADB	Room Environmental Data	B1802

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1802	Single bedroom: Children/young people, with relatives overnight stay
Room Number:		**Revision Date:** 23/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	21	Winter temperature (degC): up to 24, independent control
Summer Temperature (DegC):	23	
Mechanical Ventilation (Supply ac/hr):		Mechanical ventilation (supply): Refer to HBN text.
Mechanical Ventilation (Extract ac/hr):		Mechanical ventilation (extract): In-patient barrier nursing. Refer to HBN text.
Pressure Relative to Adjoining Space:		
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		
General Notes:		Pressure relative: WC NEG to bedroom.

(A52700892 - NSGH - Generic ADB Room Data Sheets - 07 April 2009 – Bundle 43, Volume 4, Page 1519)

Refer to page 15/16 of my Narrative for a description of the ADB room data sheet for GEN-SGH - Generic Rooms - B1802 - Single bedroom: Children/young people, with relatives overnight stay; and page 18/19 for GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing.

ADB	Room Data Sheet	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

Activities:	1) Clinical hand washing. 2) Dispensing disposable aprons. 3) Dispensing disposable gloves. 4) Disposal of clinical waste. 5) Disposal of non-clinical items.			
Personnel:	2 x Persons			
Planning Relationships:	Direct access to single bedroom.			
Space Data:	**Area (m²):**	6.00	**Height (mm):**	2,700
Notes:	Source and protective isolation. For ventilated lobby details see HBN Isolation facilities in acute settings. The use of personal protective equipment (PPE) will be determined by local infection control policy.			

ADB	Room Environmental Data	G0507

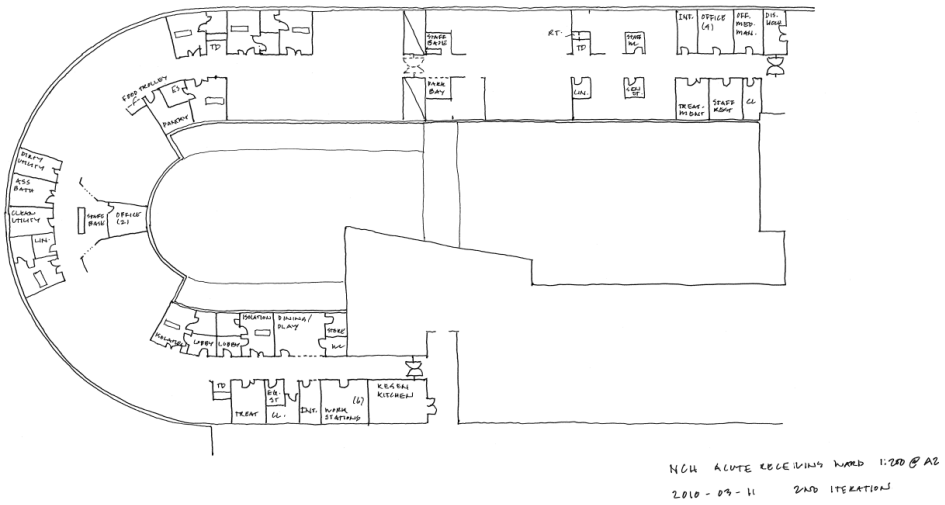
Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	20	
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:	POS	
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing **(A52700892 - NSGH - Generic ADB Room Data Sheets - 07 April 2009 – Bundle 43, Volume 4, Page 1655)**

There are 2 positive pressurized single isolation rooms, with access via the gowning lobby. This full 'suite' includes the positive pressure gowning lobby, and negative pressure ensuite.

The design of the 2 isolation rooms has not changed on the 1:200 department plan from the ITPD bid submission to the user sign-off. At UGM 01 the location of the isolation rooms moved one structural bay to the left of the core to enable to relocation of the Play/Dining space, which was capture in an updated sketch, **A52701612 – NCH Acute Receiving Ward 1:200 and A2 2nd Iteration Sketch Bundle 43, Volume 5, Page 637**. The layout aligns with the new build single room diagram within SHPN 04 Supp 1.



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2010-03-11 NCH ARU 02 2nd Iteration (**A52701612 – NCH Acute Receiving Ward 1:200 and A2 2nd Iteration Sketch Bundle 43, Volume 5, Page 637**)

Level 02 – Children's Hospital – Schiehallion Ward

The ER's provided a general description of the ventilation design requirements within the Client's Brief, page 6 Clinical Output Specifications NSGACL Haemat-Oncology NCH_iss1_rev **(A52427506 – NA-SZ-03-PL-332-508 Bundle 43, Volume 6, Page 53)**

7. KEY OPERATIONAL POLICIES/ISSUES

Accommodation requirements:

1) General In-patient Ward

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. Because of the risk of infection to patients, this does mean that no exterior ventilation (opening windows or doors) can be permitted, and therefore, it is an essential requirement to have good quality, adjustable mechanical heating and cooling ventilation. A preference would be to have individual cubicle adjustable thermostats.

2) Teenage Cancer Trust ward and Day-Care Facilities

The preference, and clinical sensibility would be for the teenage cancer trust ward unit to sit alongside (in an adjacent wing or corridor) to the main haematology and oncology unit. This would allow a greater flexibility in the utilisation of specially and specifically trained clinical staff.

3) Day-Care Unit / Short Stay Ward (incorporating the Regional Haemophillia Unit)

It is not necessary to maintain a low level of positive pressure within this area, however, it is important to maintain excellent levels of heating and cooling, as patients are often unable to regulate their own temperatures.

4) BMT Waiting Room

This is a FACT-JACIE accreditation requirement. The room must be physically separated from the standard waiting room, and provide a level of isolation for the patient and their family (up to five people to be accommodated).

The Schedule of Accommodation (SoA) brief (page 14 NSGACL Schedule of Accommodation NCH_iss1_) **(A52701442 - NSGACL Schedule of Accommodation - Issue No.4 - April 2009 – Bundle 43, Volume 4, Page 696)** was to provide 8 of the single bedrooms with air lock lobbies.

	A	B	C	D	E	F
1	**SCHIEHALLION WARD (22 BEDS)**					
2	**Description**	**Qty**	**Unit Area m²**	**Total Area m²**	**ADB CODE**	**Comments**
3	**Bed Area**					
4	Single bedroom: Children/young people, with relatives overnight stay	21	16.5	346.5	B1802	
5	Lobby: air lock to bedroom	8	7.0	56.0	G0507	
6	Shower, WC & wash: accessible, wheelchair assisted	21	4.5	94.5	V1610	As per HBN 00-02
	Office Area with workstations (x4)	1	18.0	18.0	M0115	

The Stage 2 SoA confirmed the ADB room briefing codes on the Schiehallion 'tab' of the excel NCH SoA ER With ADB Codes (**A52701410 – NCH – Stage 2 Schedule of Accommodation Bundle 43, Volume 6, Page 54).**

These linked to the ITPD ADB Sheets provided in the ERs NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**);

ADB	Room Environmental Data	B1802

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B1802	Single bedroom: Children/young people, with relatives overnight stay
Room Number:		**Revision Date:** 23/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	21	Winter temperature (degC): up to 24, independent control
Summer Temperature (DegC):	23	
Mechanical Ventilation (Supply ac/hr):		Mechanical ventilation (supply): Refer to HBN text. Mechanical ventilation (extract): In-patient barrier nursing. Refer to HBN text.
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:		
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		
General Notes:		Pressure relative: WC NEG to bedroom.

(A52700892 – Bundle 43, Volume 4, Page 1519).

Refer to page 15/16 of my Narrative for a description of the ADB room data sheet for GEN-SGH - Generic Rooms - B1802 - Single bedroom: Children/young people, with relatives overnight stay; and page 18/19 for GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing.

ADB	Room Data Sheet	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

Activities:	1) Clinical hand washing. 2) Dispensing disposable aprons. 3) Dispensing disposable gloves. 4) Disposal of clinical waste. 5) Disposal of non-clinical items.			
Personnel:	2 x Persons			
Planning Relationships:	Direct access to single bedroom.			
Space Data:	**Area (m²):**	6.00	**Height (mm):**	2,700
Notes:	Source and protective isolation. For ventilated lobby details see HBN Isolation facilities in acute settings. The use of personal protective equipment (PPE) will be determined by local infection control policy.			

ADB	Room Environmental Data	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	20	
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:	POS	
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing **(A52700892 – Bundle 43, Volume 4, Page 1655**).

There are 8 positive pressurized single isolation rooms, with access via the gowning lobby. This full 'suite' includes the positive pressure gowning lobby, and negative pressure ensuite. The layout of 4 of these isolation suites vary from the new build single room diagram on page 24 SHPN 04 Supplement 1, with the lobby in front of the single bed rather than to the side.

Please refer to page 52-54 of the Narrative for further details of the 1:200 Department Design development, including the isolation rooms, which took place during the user meetings.

Level 03 - Children's Hospital – Inpatient Ward

The ER's provided a general description of the ventilation design requirements within the Client's Brief, page 4 Clinical Output Specifications for the Generic Ward department (NSGACL_GENERIC_WARD_NCH_iss2_rev) **(A52697808 - New Children's Hospital - Clinical Ouput Specification for inpatient wards - undated – Bundle 43, Volume 4, Page 44)** confirms that,

'2 rooms per ward will be used for isolation purposes and will have an associated gowning lobby.'

The Schedule of Accommodation (SoA) brief **(A35184890 – NCH - Stage 2 Schedule of Accommodation Bundle 43, Volume 6, Page 11)** page 9 was to provide 2 of the single bedrooms with air lock lobbies. The Stage 2 SoA confirmed the ADB room briefing codes on the Wards 'tab' of the excel NCH

SoA ER With ADB Codes (**A52701410 – NCH – Stage 2 Schedule of Accommodation Bundle 43, Volume 6, Page 54).**

These linked to the ITPD ADB Sheets provided in the ERs NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**). Refer to page 15-16 of my Narrative for a description of the ADB room data sheet for GEN-SGH - Generic Rooms - B1802 - Single bedroom: Children/young people, with relatives overnight stay; and page 18/19 for GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing.

There are 2 positive pressurized single isolation rooms, with access via the gowning lobby. This full 'suite' includes the positive pressure gowning lobby, and negative pressure ensuite.

The design of the 2 isolation rooms has not changed on the 1:200 department plan from the ITPD bid submission to the user sign-off (refer to **A52701617 – Third Floor Plan - NCH In-Patient Ward Rev. 03 - Bundle 43, Volume 5, Page 715** and **A52701622 – Third Floor Plan - NCH In-Patient Ward/Ward Support Rev. 04 - Bundle 43, Volume 5, Page 722).**

The layout aligns with the new build single room diagram on page 24 SHPN 04-Supplement 1.

Adult's Hospital – Haematology Oncology Ward

The ER's provided a description of the ventilation design requirements within the Client's Brief, Clinical Output Specifications NSGACL Haemato Oncology NSG_iss1_rev.

Page 1 confirms the following;

'Special Room Requirements….

Negatively pressured, ventilated pentamidine room.

Rooms suitable for isolation of immunocompromised patients.

Gowning lobbies are not required.

Ventilation

Please note the haemato-oncology ward area has a very specific function and a considerably higher than average requirement for additional engineering support/infrastructure. There should be no opening windows, no chilled beams. Space sealed and ventilated. Positive pressure to rest of the hospital and all highly filtered air >90%, probably best HEPA with adequate number of positive pressure sealed HEPA filtered side rooms for neutropaenic patients as in the Beatson West of Scotland Cancer Centre.'

And on page 2;

'Ventilation

As described, for the haemato-oncology ward there should be no opening windows, no chilled beams. Space sealed and ventilated. Positive pressure to rest of the hospital and all highly filtered air >90%, probably best HEPA with adequate number of positive pressure sealed HEPA filtered side rooms for neutropaenic patients as in the Beatson West of Scotland Cancer Centre. Require a negatively pressured, ventilated Pentamidine room. Patients will receive inhalations in this room and there must be frequent air changes to remove the contaminated exhaled air.'

NSGACL Adult Isolation Rooms_iss1_rev (090604 tender addendum_TAD-00018) **(A52701479 - NSGACL Update on the Isolation Rooms for the New South Glasgow (Adult) Hospital – undated - Bundle 43, Volume 4, Page 1167)** stated that the Adult Haemato-Oncology Ward should be;
'Sealed ward with hepa filtration positive to the rest of the hospital and all highly filtered air to H13 i.e. 99.95%

(NB - requires a negatively pressurised Treatment Room within the Haemato-Oncology Unit for administration of pentamidine inhalations.)'
The Schedule of Accommodation (SoA) brief (page 9 NSGACL Schedule of Accommodation NSG_iss1_rev) **(A52701492 - NSGACL Schedule of Accommodation -OBC SoA - ER Version updated April 2009 – Bundle 43, Volume 4, Page 1249)** was to provide 14 positive pressure single bedrooms with no air lock lobbies. The Stage 2 SoA confirmed the ADB room briefing codes on the Haemato- Oncology Ward 'tab' of the excel 090430

SoA_NSGH_ER_version – TA **(A52701408 – Excerpt - Haemato-Oncology Ward ADB Room Briefing Codes Bundle 43, Volume 5, Page 964)**.

These linked to the ITPD ADB Sheets provided in the ERs NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**). Refer to page 11/12 of my Narrative for a description of the ADB room data sheet for GEN-SGH - Generic Rooms - B0303 - Single bedroom: Adult acute With clinical support. Relative overnight stay.

Following the development of the Stage 2 Template RDS, and prior to the commencement of the 1:50 Room Type production, NA-IBI, Tribal and the NHS worked together to agree the allocation the of Template RDS to the rooms in the CAD model through an exported Codebook SoA 110310 NSGH_09080_SoA. With reference to this excel document I note that the ADB room briefing applied to the bedrooms was B0305 Single-bed room: HBN 04-01, which was the most current ADB code available for a single bedroom.

Please refer to page 46-47 of the Narrative for further details of the 1:200 Department Design development

Level 04 – Adult's Hospital – Renal Inpatient Ward

The ER's provided a general description of the isolation design requirements within the Client's Brief (refer to Page 8 Clinical Output Specifications NSGACL_Renal_NSG_iss1_rev[1] **(Please refer to Bundle 16, Document 18, Page 1622).**

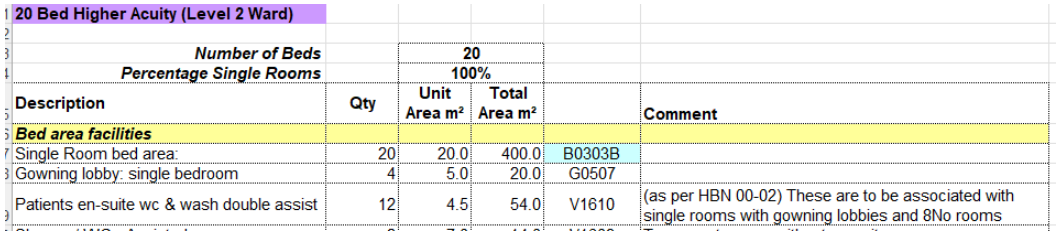
Any patient requiring protective isolation or with a highly infectious problem (e.g. Herpes) will be nursed in a room with an associated gowning lobby.

A significant proportion of patients in established renal failure will be eligible for renal transplantation. They will follow an established work-up pathway and following transplant surgery will be nursed in a protective isolation level 2 bed (with gowning lobby). Once well enough, they will be transferred to a general bed with or without protective isolation (depending upon their immunity status). Once fully recovered and with an acceptable immune status, transplant patients will be discharged home. Follow-up will be shared between the acute and primary care providers

Inpatients on other wards who are in established renal failure and require haemodialysis during their episode of care will be dialysed in the 'day unit' associated with the 16 bed ward.

‘Any patient requiring protective isolation or with a highly infectious problem (e.g. Herpes) will be nursed in a room with an associated gowning lobby.
A significant proportion of patients in established renal failure will be eligible for renal transplantation. They will follow an established work-up pathway and following transplant surgery will be nursed in a protective isolation level 2 bed (with gowning lobby). Once well enough, they will be transferred to a general bed with or without protective isolation (depending upon their immunity status).’

The original SoA provided the requirement for 4 single bedrooms to have air lock lobbies. In addition, there were further isolation rooms noted in the 16 Bed Unit and Day Unit, and the 22 bedded wards (refer to page 6-8 090430 SoA_NSGH_ER_version – TA.) **(A52701408 – Excerpt - Haemato-Oncology Ward ADB Room Briefing Codes Bundle 43, Volume 5, Page 966)**



20 Bed Higher Acuity (Level 2 Ward)					
Number of Beds		20			
Percentage Single Rooms		100%			
Description	**Qty**	**Unit Area m²**	**Total Area m²**		**Comment**
Bed area facilities					
Single Room bed area:	20	20.0	400.0	B0303B	
Gowning lobby: single bedroom	4	5.0	20.0	G0507	
Patients en-suite wc & wash double assist	12	4.5	54.0	V1610	(as per HBN 00-02) These are to be associated with single rooms with gowning lobbies and 8No rooms

090430 SoA_NSGH_ER_version – TA

NSGACL Adult Isolation Rooms_iss1_rev (090604 tender addendum_TAD-00018) (**A52701479 - NSGACL Update on the Isolation Rooms for the New South Glasgow (Adult) Hospital – undated – Bundle 43, Volume 4, Page 1167**) stated that there should be: ‘2 positive pressure sealed rooms with negatively pressurized ante-rooms are located within the 20 bedded higher acuity ward.’

It is my understanding that the Isolation Rooms Update Document ‘NSGACL Adult Isolation Rooms_iss1_rev’ was the Contractual requirement in the Adult Hospital. This was reflected within the Contract SoA (page 23 NSGH – SoA) where only 2 x Gowning Lobbies were noted as required in High Acuity Area, and the other Isolation Rooms were also omitted.

20 Bed Higher Acuity (Level 2 Ward)

Number of Beds		20			
Percentage Single Rooms		100%			
Description	Qty	Unit Area m²	Total Area m²	Comment	
Bed area facilities					
Single Room bed area:	20	20.0	400.0	only 19 rooms provided by bidder 9 below brief area	387.5
Gowning lobby: single bedroom	2	5.0	10.0	4 provided by bidder	
Patients en-suite wc & wash double assist	12	4.5	54.0	14 provided by bidder -(as per HBN 00-02) These are to be associated with single rooms with gowning lobbies and 8No rooms	

Extract from the Contract SoA - NSGH - SoA

The Stage 2 SoA confirmed the ADB room briefing codes on the Renal Wards 'tab' of the excel 090430 SoA_NSGH_ER_version – TA **(A52701408 – Excerpt - Haemato- Oncology Ward ADB Room Briefing Codes Bundle 43, Volume 5, Page 966).**

The ITPD ADB Sheets provided in the ERs NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**) only included for B0303 and B0303A. I assume the 'B' was intended to reflect the dialysis requirements in the renal bedrooms which would make the water servicing and equipment slightly different.

ADB	Room Environmental Data	B0303

Project:	08045	New South Glasgow Hospital	
Department:	GEN-SGH	Generic Rooms	
Room:	B0303	Single bedroom: Adult acute With clinical support. Relative overnight stay	
Room Number:		**Revision Date:**	07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	21	
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:		
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

Refer to page 12-13 of my Narrative for a description of the ADB room data sheet for GEN-SGH - Generic Rooms - B0303 - Single bedroom: Adult acute With clinical support. Relative overnight stay.

ADB	Room Environmental Data	B0303A

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	B0303A	Single bedroom: Critical Care With clinical support. Relative overnight stay
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	21	
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:		
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

And to page 13-14 for GEN-SGH - Generic Rooms - B0303A - Single bedroom: Critical Care With clinical support; and page 18/19 for Relative overnight stay and GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing.

ADB	Room Data Sheet	G0507

Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

Activities:	1) Clinical hand washing. 2) Dispensing disposable aprons. 3) Dispensing disposable gloves. 4) Disposal of clinical waste. 5) Disposal of non-clinical items.			
Personnel:	2 x Persons			
Planning Relationships:	Direct access to single bedroom.			
Space Data:	**Area (m²):**	6.00	**Height (mm):**	2,700
Notes:	Source and protective isolation. For ventilated lobby details see HBN Isolation facilities in acute settings. The use of personal protective equipment (PPE) will be determined by local infection control policy.			

ADB	Room Environmental Data	G0507

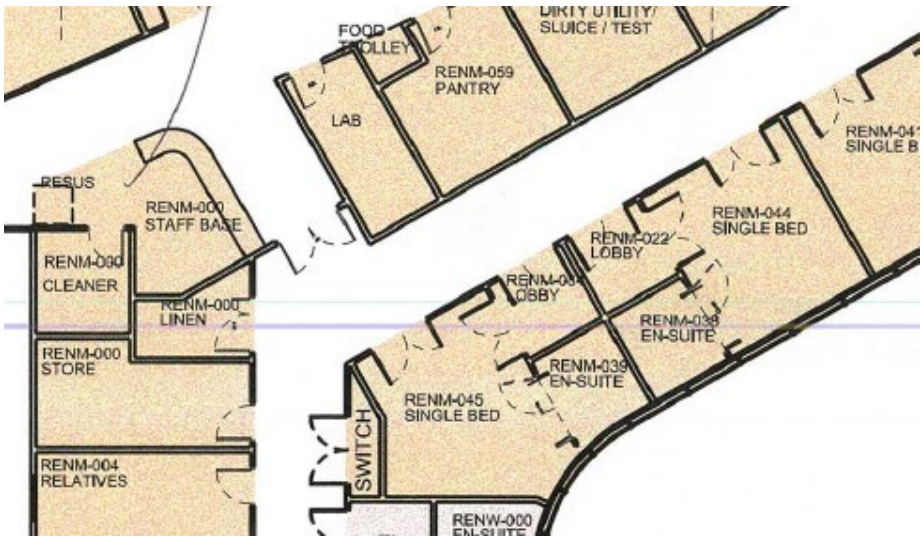
Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	G0507	Lobby: gowning (isolation room) Entrance lobby for barrier nursing
Room Number:		**Revision Date:** 07/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	20	
Summer Temperature (DegC):		
Mechanical Ventilation (Supply ac/hr):		
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:	POS	
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):		

GEN-SGH - Generic Rooms - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing

There are 2 positive pressurized single isolation rooms, with access via the gowning lobby. This full 'suite' includes the positive pressure gowning lobby,

and negative pressure ensuite. The approved 1:200 department design (2010-04-22 UGM3 Renal Ward 04 Signoff) **(A52701505 - NSGH - 1:200 Fourth Floor Plan - Higher Acuity Renal Ward/Renal Ward - 02 September 2009 – Bundle 43, Volume 4, Page 1433**) reflected the Contract SoA and provided only the 2 isolation rooms within the 20 bedded higher acuity ward.



2010-04-22 NSGH UGM3 Renal Ward 04 1-200 Signoff **(A52701505 - NSGH - 1:200 Fourth Floor Plan - Higher Acuity Renal Ward/Renal Ward - 02 September 2009 – Bundle 43, Volume 4, Page 1433)**

The layout aligns with the new build single room diagram on page 24 SHPN 04-Supplement 1. Note the bed access was also later amended to be through the lobby, and the door from the isolation room to the corridor was omitted.

Level 04 – Adult's Hospital – Respiratory Ward

The ER's provided a general description of the ventilation design requirements within the Client's Brief, page 3 Clinical Output Specifications for the Generic Ward department (NSGACL_Generic_Wards_NSG_iss1_rev[1]) (**Please refer to Bundle 16, Document 19, Page 1634**) states that,

'1 room per ward will be used for isolation purposes and will have an associated gowning lobby.'

Within the Isolation Rooms update document 'NSGACL Adult Isolation Rooms_iss1_rev' it was stated that there should be '3 negatively pressurised sealed rooms (without ante rooms) - located together' within the 'Resipiratory Wards (serving the rest of medical).'

At Stage 2 the designated location for the Respiratory Ward had not been decided, only that it would be located within one of the Generic Wards from Level 5-11.

The Respiratory Ward had an identical brief to the Generic Ward.

The isolation rooms were not included within the Generic Wards and were also omitted from the Contract SoA held within the Project Bible (2009) Folder C Volume 1 Schedule of Accommodation (page 5 NSGH – SoA). The Respiratory Ward section on page 11 is noted as 'allow 3 no. rooms negatively pressurised'.

Adults Hospital – A&E (Emergency Department

The ER's provided a general description of the isolation design requirements within the Client's Brief - Clinical Output Specification page 4-5 NSGACL_Emergency_Department_NSG_iss1_rev **(A52701487 - NSGH - Clinical Output Specification for Emergency Complex - Emergency Department - undated – Bundle 43, Volume 4, Page 1226).**

2.2.6 Isolation Facilities

The ED should have two majors cubicles which can be used to isolate high risk patients once they have been identified (e.g. multi-drug resistant TB, suspected haemorrhagic fever, severe neutropenia, and high risk infections e.g. SARS-like illness). This would act as a temporary holding area until a definitive destination was identified for such a patient.

NSGACL_Emergency_Department_NSG_iss1_rev

NSGACL Adult Isolation Rooms_iss1_rev (090604 tender addendum_TAD-00018) **(A52701479 - NSGACL Update on the Isolation Rooms for the New South Glasgow (Adult) Hospital – undated – Bundle 43, Volume 4, Page 1167** stated that there should be;

'2 negatively pressurised sealed rooms (without ante-rooms) - location as described within the Clinical Output Specification.'

The SoA brief, page 39-40 NSGACL Schedule of Accommodation NSG_iss1_rev **(A52701492 - NSGACL Schedule of Accommodation - OBC SoA - ER Version updated April 2009 – Bundle 43, Volume 4, Page 1241)** confirmed the number of treatment rooms, and the two majors cubicles were the 2 major procedures rooms associated with the patient resuscitation facilities.

ACCIDENT & EMERGENCY DEPARTMENT Based on 110,000 attendances					
Assessment & Treatment facilities					
Generic Assess / Treatment room: A&E	26	12.0	312.0	X0242	Cubicles, not rooms with easy escape e.g. curtain front not door / wall. Size and design to be confirmed. Access should be from patients r.h. side
MIU Assess & Treat Room	4	13.5	54.0	X0242A	Dual Access Rooms (i.e. 2 doors)
Waiting area: 10 persons including 1 wheelchair user	2	16.5	33.0	J1201	
WC & handwash: specimen; accessible, wheelchair	2	4.5	9.0	V1406	
Treatment room: A&E, head & neck & Opthalmology	2	16.0	32.0	X0244	With monitoring
Treatment room: A&E, gynaecology/genitourinary colposcopy	1	16.0	16.0	X0245	With monitoring
WC & handwash: accessible, wheelchair assisted	1	4.5	4.5	V0904	
Plaster Room (with 3 cubicles) & Store	1	32.0	32.0	X0206	
Staff & communication base: 15 staff	1	35.0	35.0	T0212A	
Supplies base	1	20.0	20.0	2 x T0316	
Patient resuscitation facilities					
Resuscitation room: 6 places	1	172.0	172.0	X0238	One bay equipped for babies, children & young people ??
Major Procedures Room	2	29.0	58.0	X0240	

The Stage 2 SoA confirmed the ADB room briefing code X0242 on the Emergency Department 'tab' of the excel **A52701408 – Excerpt - Haemato-Oncology Ward ADB Room Briefing Codes Bundle 43, Volume 5, Page 964.**

These linked to the ITPD ADB Sheets provided in the ERs NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52701407 – ADB B0303 Single Bedroom: Adult acute with Clinical Support, Relative Overnight stay Bundle 43, Volume 5, Page 961**), with GEN-SGH - Generic Rooms – X0242 – Treatment room: A&E, multi-functional located on pages 304-308.

ADB	Room Environmental Data	X0242

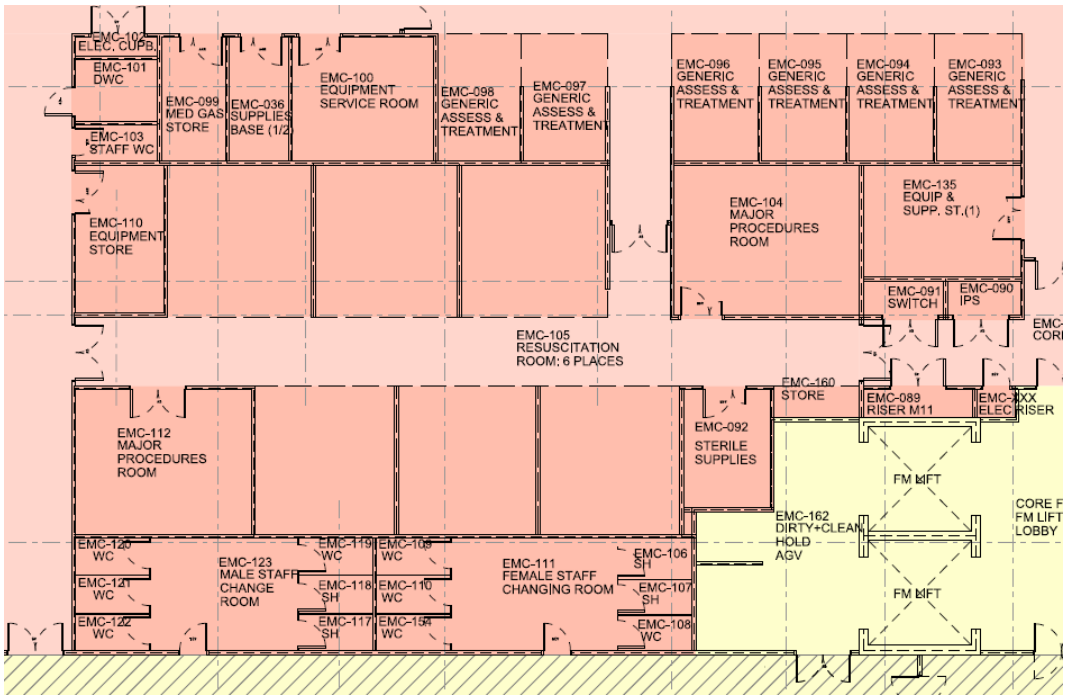
Project:	08045	New South Glasgow Hospital
Department:	GEN-SGH	Generic Rooms
Room:	X0242	Treatment room: A&E, multi-functional
Room Number:		**Revision Date:** 08/04/2009

AIR	Requirements	Notes
Winter Temperature (DegC):	27	Summer and winter temperature control 16 to 27 degC.
Summer Temperature (DegC):	16	
Mechanical Ventilation (Supply ac/hr):		Mechanical Ventilation (supply): To suit heat gain.
Mechanical Ventilation (Extract ac/hr):		
Pressure Relative to Adjoining Space:	POS	Final filtration EU10/11 to suit clinical requirements. Humidity 40 - 60
Filtration (%DSE and % Arrestance):	/	
Humidity (%RH):	60	

GEN-SGH - Generic Rooms – X0242 – Treatment room: A&E, multi-functional

The locations of the Major Procedures Rooms were moved to align with the comments from the users, with the updated 1:200 Department layout **(A52701615 – Ground Floor Plan - NSGH Emergency Department 1:200**

- Bundle 43, Volume 5, Page 711) to reflect the sign-off request to relocate resus bay 4 with one of the procedures rooms.



Extract from updated UGM 3 Sign-Off Drawing NA-xx-00-PL-252-405_07

Other ITPD Brief Isolation Rooms

There were a number of other Adult Inpatient Isolation Rooms contained within the ITPD Client Brief SoA which were superseded by the Isolation Room Update NSGACL Adult Isolation Rooms_iss1_rev (090604 tender addendum_TAD-00018) **(A52701479 - NSGACL Update on the Isolation Rooms for the New South Glasgow (Adult) Hospital – undated – Bundle 43, Volume 4, Page 1167)**

These remained within the Client Brief SoA shared in Stage 2 (which contained the addition of the Client confirmed ADB room briefing codes) but were latterly omitted from the design during the UGM reviews of the relevant 1:200 department layouts.

They were also omitted from the Contract SoA held within the Project Bible (2009) Folder C Volume 1 Schedule of Accommodation. NSGH - SoA

- Adult's Hospital – Generic Inpatient Ward – 1xGowning lobby: single bedroom to isolation bedroom was omitted to each ward.
- Adult's Hospital – ENT Ward – 1xGowning lobby: single bedroom to isolation bedroom was omitted.
- Adult's Hospital – Rheumatology Ward – 1xGowning lobby: single bedroom to isolation bedroom was omitted.
- Adult's Hospital – Renal Wards & Main Department – 1xGowning lobby: single bedroom to isolation bedroom was omitted to each of the 22 bed wards. And 2xGowning lobby: single bedroom to isolation bedroom were omitted to the 16 bed ward & day unit
- Adult's Hospital Complex Needs Cluster (AAU) – 1 ante room to isolation bedroom was omitted.
- Adult's Hospital – Acute Cluster (AAU) – 1 ante room to isolation bedroom was omitted.
- Adult's Hospital General Receiving Cluster (AAU) – 1 ante room to isolation bedroom was omitted.

4.14 Schedule of Accommodation

The Schedule of Accommodation (**SoA**) is a key component of the Client's Brief and is used to inform the development of both the 1:200 department designs and the Room Data Sheets.

The first version of the SoA was provided with the ITPD Tender Documentation in Volume 2 of the Employer's Requirements; V2.1 - Appendix C - Schedules of Accommodation. There was an SoA provided for each of the 2 hospitals, with NSG being the Adult Hospital and NCH the Children's Hospital.

- NSGACL Schedule of Accommodation NSG_iss1_rev **(A52701488 - NCH SoA - Version 4 Design for Stage 2 reflects 240 beds with expansion for 16 beds embedded in wards etc February 2009 - April 2009 – Bundle 43, Volume 4, Page 1186)**
-
- NSGACL Schedule of Accommodation NCH_iss1_rev **(Please refer to Bundle 23, Document 92, Page 904)**

  As we had provided more than the ITPD minimum requirements; we had a full set of 1:200 draft department designs, we were able to provide an 'As Drawn' SoA as part of our Bid Response.

  During the Bid Tender Clarifications Stage, we received comments on potentially missing or under sized rooms and a response was agreed against each clarification item line by line and the Contract SoA held within the Project Bible (2009) was the agreed position to progress Stage 2. I reviewed the SoA bid clarifications with the respective Hospital Design Leads Graham Harris and Jonathan Henrick, and we supplied commentary which required resolving during the development of the Stage 2 1:200 department designs.

  The Contract Versions of the SoA were located in **Folder C Volume 1 Schedule of Accommodation**

Volume 1 – Schedule of Accommodation

The figure of 166,958m^2 as determined by the Brookfield proposal, is agreed to represent the overall target area requirement of the design. This is broken down as follows between the Adult and Children's Hospitals:

Adult Hospital	126,509m2
Children's Hospital	40,448m2
Gross Total	**166,958m2**

It is agreed that the Contractor is to achieve all net room areas included within the attached Schedule of Accommodation, as outlined by the Brookfield narrative (contained in the furthest right hand column), through the design development process and demonstrate this to the Board.

The design risk associated with achievement of the above noted briefed area is included as the Contractor's Risk and identifies that the risk up to a 0.5% overage of the Gross Total (of 166,958m2), as a result of User Group input, rests with the Contractor and included within Contract Target and Maximum Prices.

The breakdown of the Gross Total is as follows:

Item	Brief (m^2)	Brookfield Area (m^2)	% to Brief (m^2)
Gross Departmental Area (includes circulation, planning and engineering)	109,785	125,893	115%
Net Departmental Area (excludes circulation, planning and engineering)	81,884	88,909	109%
Circulation Area	24,474	29,800	122%
Circulation % (of Net Area)	30%	34%	112%
Planning & Engineering Allowance	3,427	7,184	210%
% Planning & Engineering Allowance	4%	8%	193%
Communication & Plant Space Area	32,386	41,065	127%
% Communication & Plant	29%	33%	111%
Total Gross Floor Area	**142,944**	**166,958**	**117%**

- Volume 1 - Schedule of Accommodation A_
- NSGH – SoA
- NCH - SoA

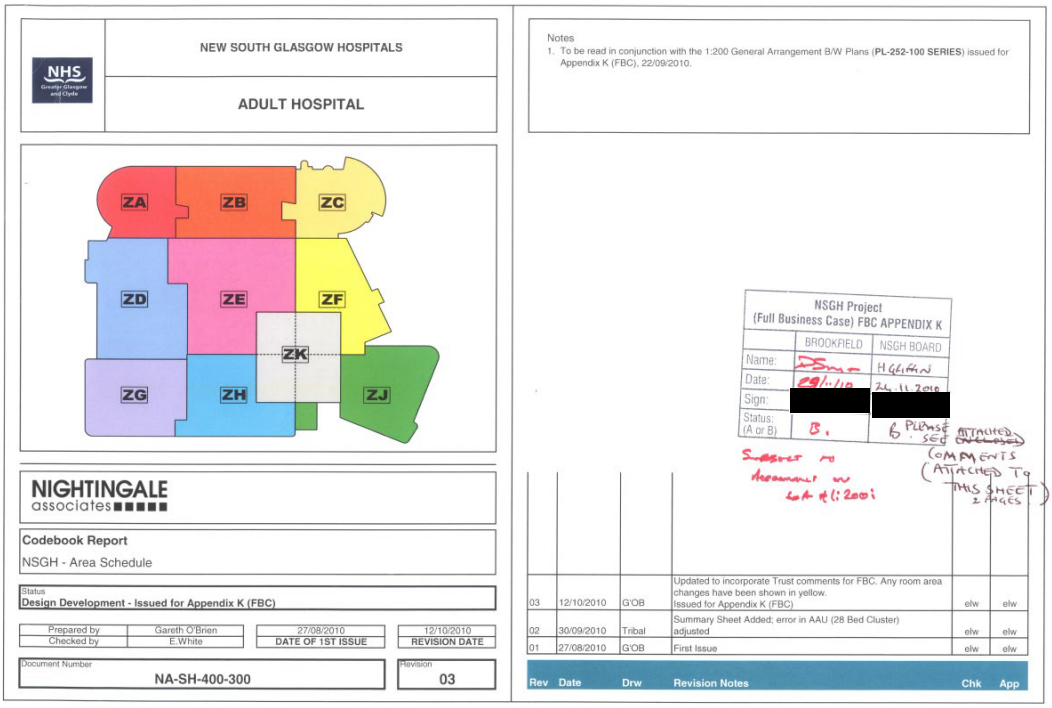
Tribal, in their role as the Multiplex Healthcare Planner, maintained a tracked version of the Contract SoA which captured any changes agreed during the 1:200 user group meetings. This was also monitored by Doig & Smith, the Multiplex QS, and Currie & Brown, the GGH appointed PM, for changes to the Contract position which could impact the cost.

The final versions of the tracked NHS Board SoA were reconciled by Tribal against the 'as drawn' SoA produced by NA-IBI to address any outstanding items.

Tribal produced a document, **A52701616 – NSGH Summary of Board and Codebook - Schedule of Accommodation - Bundle 43, Volume 5, Page 712**; to summarise the review they had undertaken to provide the assurance that all rooms required by the Board's briefed SoA were provided.

As part of the Appendix K/FBC an updated set of 'as drawn' Area Schedules were prepared and issued by NA-IBI **A52701626 – NSGH Area Schedule Rev. 03 Bundle – See Paper Apart** and **A52701613 – Nightingale Associates - Codebook Report: NCH Area Schedule Rev. 03 - Bundle 43, Volume 5, Page 642.** These were approved as Status B noting

outstanding actions which would be resolved in Stage 3 during the 1:50 fully loaded department reviews.



Cover Sheet - NA-SH-400-300 (Adult Hospital)

ADULT SCHEDULE OF ACCOMMODATION
Review of Schedules 24th November 2010

There are a number of anomalies with the adult schedule of accommodation which are causing concern and will need to be considered at the next stage. The following are examples of the issues:

> Some of the DSR's have been squeezed (5.4m^2 in one)

> A number of the waiting areas are listed at far smaller m^2 than required e.g. Ground and First Floor Outpatient Waiting Areas have required areas of 96m^2 and 90m^2, are listed at 58m^2 and 24m^2. This does not tie in with the 1:200' drawings, please confirm actual size. Other examples are the waiting areas for Critical Care and Theatres AODOS are listed as much smaller than the requested space, require review.

> Some of the outpatient consulting clinic rooms are listed substantially below required area, for example in Orthopaedics, Consulting Room listed at 11.70m^2 (required area 16.5m^2)

> Some hot desk area is below required area, therefore query may affect functionality e.g. Dermatology 2 Person Hot Desk listed at 6.6m^2 (instead of 10m^2)

> Number of Disabled Toilets and Ensuites throughout listed as 3.7m^2 instead of 4.5m^2, need to review functionality once department is loaded

> Some of the Resus Bays are half or less the requested area, may be ok but need to check functionality at next stage

> Some of the Clean and Dirty Utilities are smaller than requested, for example in Rehab and Therapy Outpatients the Dirty Utility is listed as 7.6m^2 instead of the requested 12m^2 and in outpatients it is 8m^2 instead of the requested 12m^2, the Clean Utility in Imaging (041) is listed as 7.6m^2 instead of 9m^2. Again will need to check functionality at the next stage

> Storage within Theatres is less than requested for example the satellite pharmacy store is 21% less than required.

> Theatres – quite a few of the Recovery Spaces are less than requested – need to confirm functionality and that the bed spacing is 3.5 between bed heads as discussed and confirmed by architect in the user group meetings

> Theatres - The large recovery bay at 16.5m2, which will be used for undertaking procedures, blocks etc has been listed as 17.6% below space required – need to review to ensure functionality is not affected .

> Within the Renal Wards, 2 of the Quiet Sitting Spaces are listed as 45% or more below that requested, leaving questionable functionality - will need review at the next stage. In addition, 2 of the Touchdowns are at 0.8m^2, 60% reduced from required area

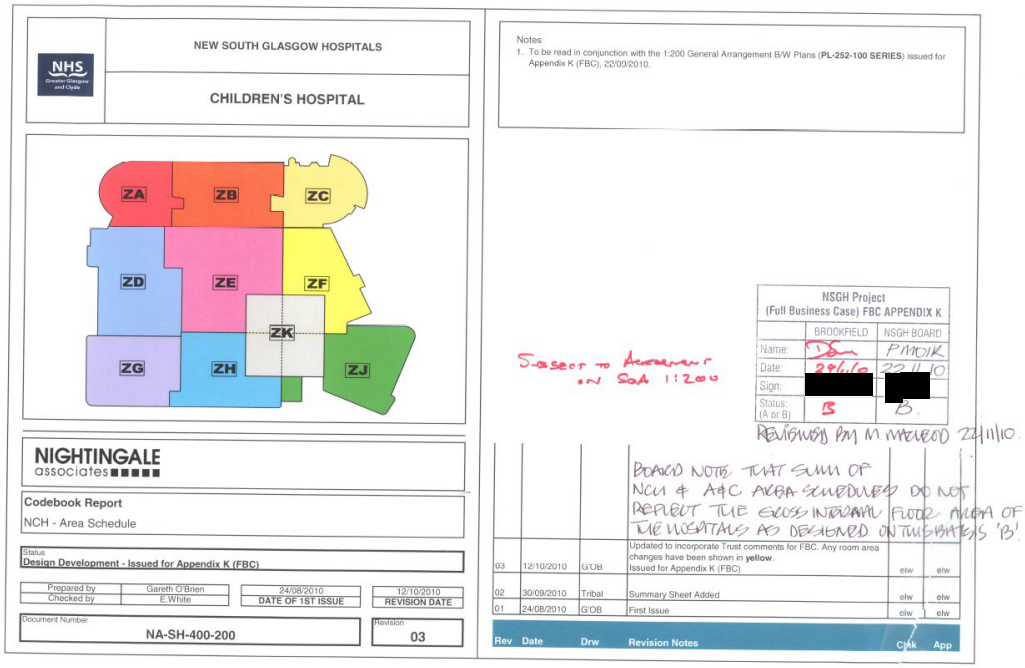
> An Interview Room in AAU is listed as 7.5m^2, will need to check functionality at the next stage

> In Imaging QA Room (058), is listed as 18.8m^2 instead of the 24m^2 required and the MRI Scanner Room (109) is listed at 62.8m^2 as opposed to 68.3m^2. In both cases the QA and MRI Rooms reviewed at 1:50 did not include the rooms above, therefore will need to review 058 and 109 for functionality at the next stage

> The Wash Up Area on floor 6 is listed at 58% below that requested, again will need to review for functionality

> Renal Dialysis 8 Chair Treatment Area (036) is 8m^2 below area requested – this is not one of the rooms which was drawn at 1:50, therefore need to review functionality at the next stage.

> Shared Core Ward Cluster – the schedules issued currently only show Cluster Type A – please note that here are 4 different multi-functional clusters, the floor location of these is yet to be agreed by the Board



Cover Sheet - NA-SH-400-200_rev 03 (Children's Hospital)

4.15 Room Data Sheets

Room Data Sheets **(RDS)** are a standardised form of document on which is recorded all of the relevant information for the design of a specific room type, including room space data (m2 areas and height), room activity data, room environmental data such as ventilation and lighting, room design character (including finishes) and the schedule of room components including medical equipment, power and data outlets, and fixtures and fittings.1

1 Refer to **A52701614 – Tribal Document ADB PowerPoint Presentation - Bundle 43, Volume 5, Page 707.**

The RDSs were subject to revision and development during various stages of the project up to the end of the design stage. When finalised the RDS's fixed the design brief for each room type within a department. They informed the content of the 1:50 scale room layout plans, 1:50 room elevation drawings and 1:50 departmental layout drawings.

Invitation to Participate in Dialogue (ITPD) Stage

GGHB provided within the invitation to tender documents Volume 2.1 - Appendix E_ADB Room Data Sheets an initial set of template RDSs for various typical room types. These were taken from the NHS Activity Data Base (**ADB**).

Template Review Stage

Initial Template RDS Brief

During this period, which ran from January 2010-June 2010, healthcare planners Tribal commenced their scope of work, which was to complete a full review of the Client Template RDS and Schedule of Accommodation and worked with the GGHB project team to agree a standard process for the development of the project specific Template RDS, and agree the attribution of the most current and appropriate ADB code to each of the room types within the Adult and Children's Hospitals. GGHB provided a version of the Client Brief SoA 090430 SoA_NSGH_ER_version – TA (Adult Hospital) and NCH SoA ER With ADB Codes (Children's Hospital) which included their 'brief' ADB codes, which Tribal reviewed to ensure they were the current version of the room type in ADB.

2 Refer to Tribal Document - 120310 RDS Development Process Rev F **(A52697906 - South Glasgow New Hospital – RDS Development Process - Draft - 12 March 2010 – Bundle 43, Volume 4, Page 63)**

Tribal also issued the initial Environmental Data Sheets, through an exported Excel Environmental Data Schedule, to ZBP which allowed them to review and update the environmental data to suit their M&E design. Tribal imported the ZBP commented excel schedule back into the project database, and this was reflected within the Template RDS issued by Tribal. ZBP retained responsibility for the environmental data within the RDS at all stages of the project. 01-06-10 NSGH Tribal ADB RDS_all rooms **(A52697944 - NSGH - Tribal ADB RDS - List of All Rooms - 01 June 2010 – Bundle 43, Volume 4, Page 83)**

The process agreed with the GGHB team was that the Template RDS would be approved only as 'technically ready' to allow the progression of the design up to FBC, and the full RDS approval would take place after FBC.3

3 Refer to summary process in Aconex - NA-GC-000179 - ADB Room Data Sheets - 01-11-2010 **(A52699552 - Mail from Emma White to Manny Ajuwon (Brookfield) and others - ADB Room Data Sheets - 01 June 2010 – Bundle 43, Volume 4, page 81)**

Any technical reviews of the environmental data sat outside the User Group Meetings (**UGM**) in a series of Mechanical and Electrical (**M&E**) Technical Review Meetings, which were not attended by IBI.

Concurrently, the 1:200 department designs were being reviewed with the Client team and their users during 3 rounds of UGMs (UGM1, UGM2 and UGM3) which ran from approximately January 2010-May 2010.

Template RDS Development to FBC/Appendix K

Following the completion and revalidation of the Template RDS Brief, we imported the agreed ‘technically ready’ Tribal ADB database into our project Codebook database, which linked the RDS Brief templates to each room in the building, to progress the production of the 1:50 Room Type Layouts. This followed the conclusion of the 1:200 department design stage in approximately May 2010.

In June 2010, 1:50 room type layout plans with a supporting individual RDS room report were produced and reviewed in UGMs 4 and 5 during June and July 2010 and August and September 2010 respectively. The primary purpose of these RDS room reports was to provide the component list to enable the users to understand the descriptions of the ADB equipment codes and quantities which were demonstrated on the room layout plans.
The Template RDS were now linked to the building CAD models and to the approved department layout plans, which allowed the next level of reviews and updates to take place.

We produced further exports of the Environmental Data Schedule (**EDS**) to ZBP, which were again reviewed in M&E Technical Review Meetings.
The agreed set of EDS for the Room Types were included in Folder J Volume 8 – ADB of the Appendix K Project Bible.4
4 Refer to **A52701581 – Batch 1 ZBP Updates - Bundle 43, Volume 5, Page 413**, and EDS ItP Batch 2 - ZBP updates_141210 (UKWOBD0002_00021695 - 11. EDS ItP Batch 1 - ZBP updates_141210.xlsx) **(This document will not be bundled)**.
The above process produced a package of 1:200 department layout plans, 1:50 room type equipment plans, an SoA and template RDSs which was submitted as the Full Business Case / Appendix K deliverables and approved by GGHB in October 2010 and by the Scottish Government in December 2010.

As noted, the RDS were not 'signed off' by GGHB Project Team at this stage, they were agreed as 'technically ready' to be used to produce the 'fully loaded' (all equipment included) 1:50 plans and for inclusion in the Full Business Case/ Appendix K.

4.16 1:50 Room Types

General Process

Due to the scale of the building, it was unachievable to develop the design for the fully loaded 1:50 fixtures, fittings and equipment (FF&E) department plans within the timescales required to deliver the Appendix K/FBC programme. Therefore, it was agreed that the focus would be on developing a set of 1:50 Room Type drawings, which covered the vast majority of different room types in both Hospitals. We suggested this should be a % of rooms (approximately 80%) based on an analysis of the room types identified by Tribal as part of the RDS process; and then applied a risk review against the remainder. The strategy was focused on the most frequent 'repeating' rooms, i.e. ensuring we included one of each room type in the generic wards, which represented the largest number of repeatable rooms and would therefore cover the largest area of the building. In addition, we also ensured that complex rooms, such as the Theatre Suite; Critical Care patient rooms, and those containing expensive imaging equipment (e.g. Xray, CT, MRI etc) were also included. The final number and locations of rooms were agreed with the GGC NHS project team and were supported with Room Data Sheets for all ADB Room Types; Standard Fixing Height Drawings; and Codebook Equipment Schedules/Reports for all room types. This supported the production of an updated FBC Equipment List, providing a more accurate equipment budget for FBC.

This process would also effectively validate the 1:200 department design in terms of demonstrating that the room shapes and areas were clinically functional, and that the briefed equipment could be accommodated within the rooms.

The 1:50 Room Types were initially developed as 1:50 FF&E layout plans only; in Stage 3 the agreed rooms would be templated and copied into repeating locations within all departments; the original 1:50 Room Type Layouts were updated to include all the wall elevations and became the 1:50 Room Elevation 'C' Sheets.

Work progressed with the set-up for the 1:50 process through the template RDS Development; the equipment brief for the 1:50 Room Types originated from the schedules of equipment components within 'technically ready' RDS. Refer to Chapter 4.15 Room Data Sheets for a more detailed description of the RDS process.

NA-IBI's 1:50 Codebook/Database Lead, Alex van den Berg, worked closely with Tribal's ADB Database Lead, George Illiopoulos, to link the databases through an exported SoA which was generated from the CAD models.

Concurrently, an analysis of which location should be used to best demonstrate the room type took place. This exercise was a collaborative process involving our 1:50 team, Tribal and the NHS 1:50/RDS lead, Frances Wrath. This resulted in a set of Room Type Location Plans to demonstrate the location of the agreed room types.

Following the conclusion and agreement of the 1:200 Department Design Stage, work commenced on the production of the 1:50 Room Type drawings; the rooms were 'loaded' with equipment components from the agreed 'technically ready' RDS.

There was a total of approximately 500 room type drawings developed for Appendix K, which were reviewed in 2 rounds of user group meetings.

1:50 User Group Meeting Programme

A set of 1:50 RT User Group Meeting Timetables **A52701600 – NSGH & NCH Design User Group Meetings 2 - 1:50 Room Type Stage (Week Four) Rev. 04 - Bundle 43, Volume 5, Page 601** were developed to support the organization of the UGM process. The sequence of meetings was adjusted to align with both the clinical user's availability, and to coordinate the similar department room types on consecutive days.

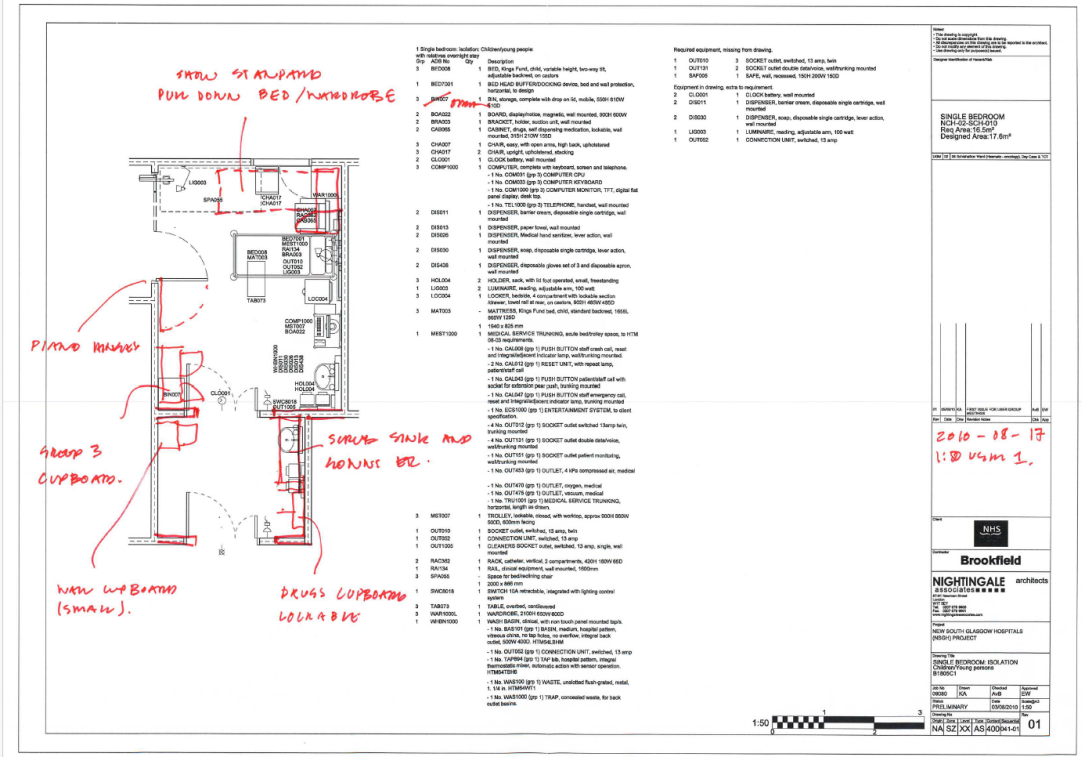
For example, the Adult Inpatient Wards contained the largest number of rooms, with the largest number of repeatable room types, so this was the first meeting. The Children's Inpatient Ward meetings were re-aligned to follow the Adult's meeting, to ensure that similar standard comments were captured across the 'whole' project.

The NA-IBI meeting attendees varied slightly, with senior architects more experienced in the 1:50 equipment process involved.

In general, the focus of the meetings was to review the equipment, ensure this met the user's requirements in terms of functional layout and confirm whether there were any items missing.

NSGH 1-50 Room Type Production Schedule for FBC **A52701602 – NSGH 1:50 Room Type Production Schedule Rev 06 - Bundle 43, Volume 4, Page 612** demonstrated the quantity of drawings produced and reviewed in each round of meetings.

We have copies of all the mark-up drawings, and the Appendix K sign-off versions of all the 1:50 room types. But these were in reality 'work in progress' to support the agreement of the cost plan, and the set-up of the Stage 3 1:50 fully loaded department plans. I was not in attendance at the 1:50 room type UGMs, however I have reviewed a sample of the commented drawings. I do not believe an in-depth review of these would assist the SHI, so I have not provided any specific commentary on the departments of interest.



Example Room Type - NA-SZ-XX-AS-400-041-01 UGM2 Markup 2010-08-17

Room Mock-Ups **(A52806238 Bundle 43, Volume 6, Page 20)**

Physical Mock-Ups were also developed and built using the approved 1:200 department layouts; at Stage 2 these were for the Adult Inpatient Bedroom (including ensuite and touchdown base) – refer to **A52701605 – Room**

Layout Detail, Single Bedroom, Shower Room: Ensuite - Bundle 43, Volume 5, Page 629;

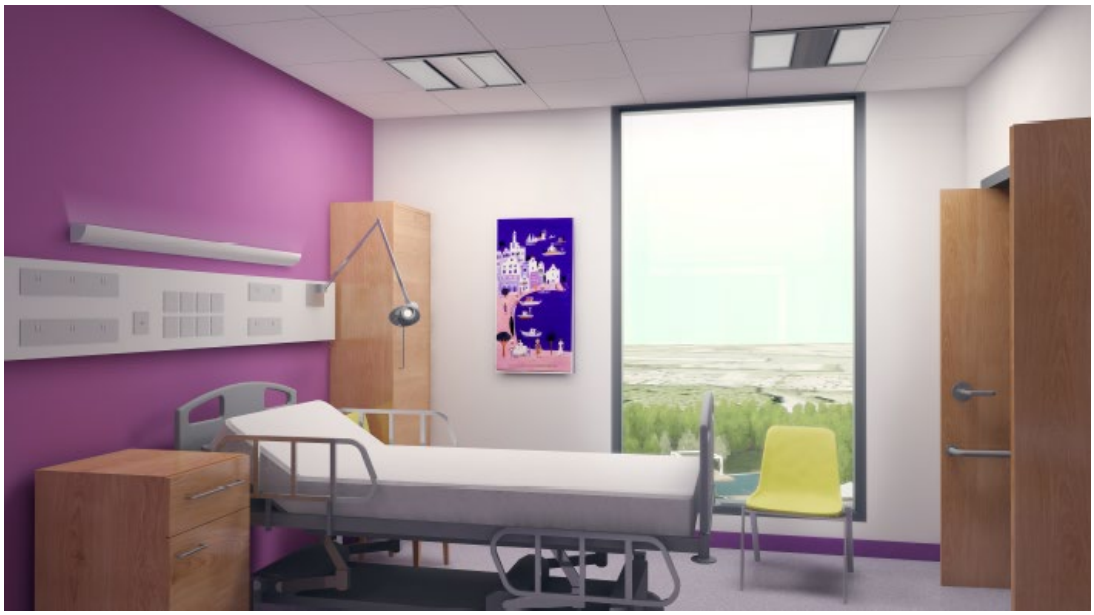


Image from Mock Up - Adults-Rev B **(A52701431 - NSGH Adults Hospital Bedroom Mock Up - undated – Bundle 43, Volume 4, Page 664)**

and the Children's Inpatient Bedroom (including ensuite and touchdown base) – refer to **A52701606 – Room Layout Detail, Single Bedroom: Children/Young people, with relatives overnight stay - Bundle 43, Volume 5, Page 630**.

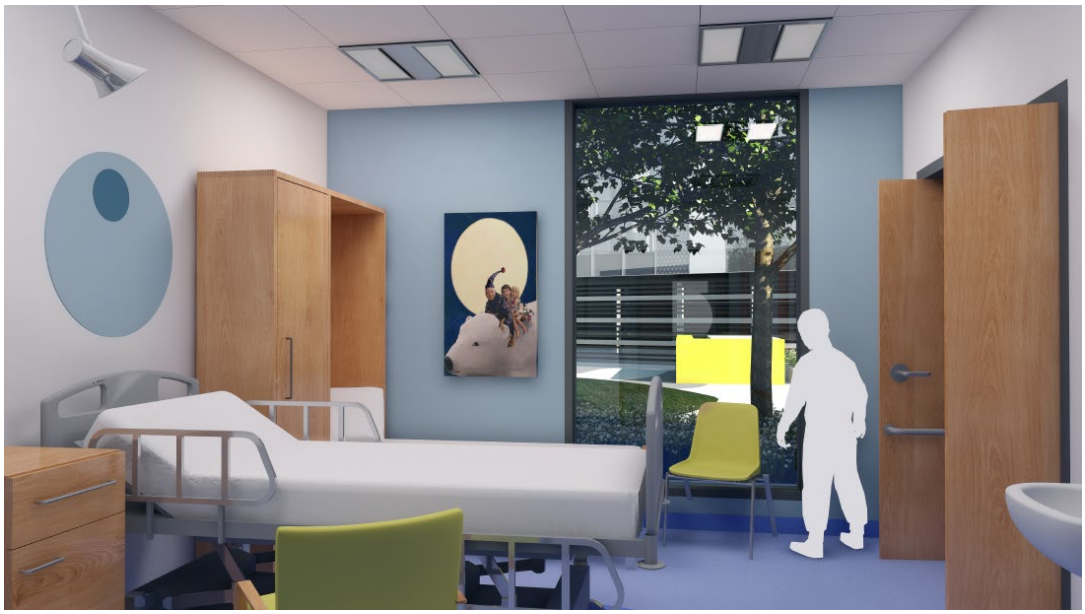


Image from Mock Up – Childrens **A52701607 – Mock Up - Children's Hospital Bedroom - Bundle 43, Volume 5, Page 631**. A standard Adult Critical Care Bed Bay was also mocked-up more as a spatial review, and was not fitted out at this stage.

We prepared mock-up setting-out plans, and 3D visualizations to support the GGC project team's internal campaign to request attendance and feedback on the developing designs.

4.17 Procurement Packages/Costing

To support the Appendix K/Full Business Case (FBC), a greater level of cost certainty was required. At the time this would have aligned with RIBA Stage D, and part RIBA Stage E; against the current RIBA Plan of Work this probably aligns with RIBA Stage 3+.

The main subcontractors covering the largest/highest value packages; M&E; Structural Frame; Façade and Internal Partitions were already part of the Project Team as Supply Chain Partners.

Therefore, the focus for procurement was the development of 1:200 design strategy packages supported by full NBS Specifications to allow BM to 'market test' the design further with a more developed design, which would then be fed back into the cost plan to allow the finalization of the Stage 2 'Guaranteed Maximum Price'.

The high-level list of architectural drawing packages prepared to support both costing and the Appendix K/FBC process were as follows;

- 01 SP Specifications
- 02 PL-252-010 Coloured Department Relationship Plans 1-500
- 03 PL-252-400 Coloured GA Departmental Plans 1-200
- 04 PL-252-100 BW Coordinated GA Plans 1-200
- 05 PL-240-000 Roof & Soffit Location Plans 1-500
- 06 PL-240-100 GA Roof Plans 1-200
- 07 EL-251-000 Coloured GA Planning Elevations 1-200
- 08 EL-251-010 Coloured & BW Courtyard Elevations 1-200
- 09 EL-251-100 BW Coordinated GA Elevations 1-200
- 10 SE-251-000 Coloured GA Planning Sections 1-200
- 11 SE-251-100 BW Coordinated GA Sections 1-200

- 12 PL-251-001 Cladding Type Location Plans 1-500
- 13 SE-251-200 Cladding Type Detailed Sections 1-20
- 14 IM-200-000 3D Visuals
- 15 AS-200-100 Component & Assembly Drawings
- 16 PL-572-100 Fire Strategy Plans 1-500 & 1-200
- 17 PL-331-150 Floor Finishes Strategy Plans 1-300
- 18 PL-333-150 Wall Finishes Strategy Plans 1-300
- 19 PL-332-150 Ceiling Finishes Strategy Plans 1-300
- 20 PL-410-150 Wall Protection Strategy Plans 1-300
- 21 PL-322-150&160 Door Type & Door Privacy Strategy Plans 1-300
- 22 PL-322-250 Access Control & Locking Strategy Plans 1-300
- 23 PL-330-200 Radiation Protection Strategy Plans 1-200
- 24 PL-330-150 Acoustic Strategy Plans 1-300
- 25 PL-480-150 Special Equipment Slab Recess & MJ Strategy Plans
- 26 PL-321-150 Glazed Screen Location Strategy 1-300
- 27 DC-100 Access Statement
- 27 DC-330 Interior Design & Wayfinding Strategy
- 27 DC-450 Access & Maintenance Strategy
- 27 PL-470-100 Core Art Strategy Plans 1-300
- 27 SH-400 Schedule of Areas-Accommodation
- 28 AS-400-000 Room Type Layouts 1-50

4.18 Appendix K/Full Business Case (FBC)

The Full Business Case is defined at Clause 11.2(41) of the Conditions as 'The Employer's submission to the Scottish Government for permission to proceed with Stage 3 and Stage 3A of the works'.

Within the NHS, a Full Business Case (FBC) is a detailed document used to justify and secure approval for a specific project or initiative within the NHS. It's a comprehensive assessment that outlines the need, options, benefits, and financial implications of a proposed scheme. The FBC is built upon the Five Case Model, which includes strategic, economic, commercial, financial, and management aspects.

The FBC design deliverable requirements were stipulated within the ITPD Documents **A52701573 – NSGH Invitation to participate in Competitive**

Dialogue Volume 2/1 Appendix K – undated - Bundle 43, Volume 5, Page 222.

Planning Approval Process (Reserved Matters)

A milestone requirement for FBC is Planning Approval. The Stage 2 Programme therefore required a concurrent workstream to progress dialogue with Glasgow City Council Planning Department.

The GGC Planning Consultant, Ironside Farrar, continued their role working alongside our external focussed Architecture and Masterplan team, led by my colleagues Neil Murphy (Project Director) and Jamie Brewster (Design Director). Initial introductory presentations with the Planners took place in January 2010, to present the bid design proposals, gather some feedback and review and agree the planning logistics for the approval of the reserved matters and planning conditions for the New South Glasgow Hospitals.

Refer the Stage 2 draft programmes 091216 Stage 2 Contract Programme BCL-GS2-CN01-0004 **(A52701651 – NSGH - Stage 2 Detailed Design to Full Business Case Programme, Rev. 01 Bundle 43, Volume 5, Page 932);** BCL-GS2-WK-0005 for Appendix K - Architectural deliverables Summary 02 **(Please refer to Bundle 17, Document 61, Page 2333)** for an overview of the activities and deliverables required.

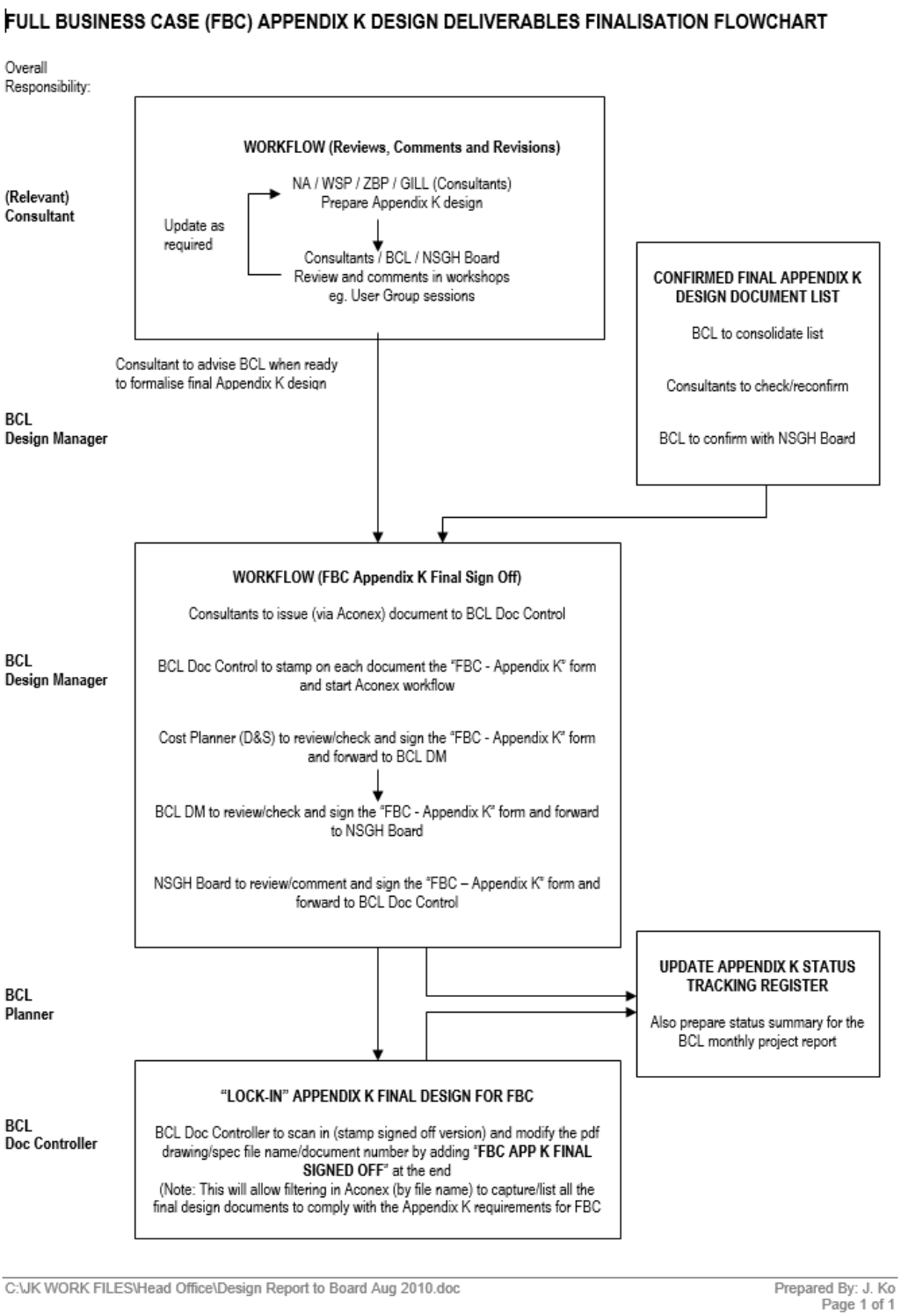
Appendix K Review and Approval Process

A series of package review meetings were arranged with the GGC Project Team, to present the initial draft Appendix K package in a workshop environment. These ran from the beginning of August 2010 until the end of September 2010. I have located the records, in the form of mark-up drawings, of the discussions in the following workshop reviews;

- Structural Review - columns, movement joints, shear walls
- External Envelope Design Review - window sizes, cill heights
- Internal Door Review - Access Control & Locking Strategy
- Internal Door Review - Door Types & Privacy Strategy
- Internal Finishes Review - Walls, Floors & Ceilings
- Protection Strategy (Walls & Doors) Review
- Internal Glazed Screen - Strategy Review

In addition, there was a series of M&E review workshops, in which the M&E Appendix K package was reviewed. Although NA-IBI were not present in these workshops, I have located within Folder V - Appendix K (M&E Engineering) records of Wallace Whittle and Capita Symonds comments on the proposals. **WW APP K Comments (A52701653 – Wallace Whittle Comments on Workshop Reviews of M&E Drawings Bundle 43, Volume 5, Page 940)** appears to be a record of the workshops; page 5 contains comments on Ventilation, with **App K brookfield response to WW_cap sym comments 20101108 rev A (A52701650 – NSGH - Brookfield Response to comments on Appendix K M&E Drawing Bundle 43, Volume 5, Page 918)** the response, which for ventilation can be seen on page 5.

Following the initial presentation of the draft Appendix K packages, these were then updated to reflect any comments received in the workshops and issued formally on Aconex to follow the agreed project protocol. **A52701569 – Brookfield - Full Business Case Appendix K Design Deliverables Finalisation Flowchart - Bundle 43, Volume 5, Page 221** represented the agreed drawing process BM implemented.



A52701569 – Brookfield - Full Business Case Appendix K Design Deliverables Finalisation Flowchart - Bundle 43, Volume 5, Page 221.

Thereafter, BM and the GGC Project Team continued to review and comment on the packages, which were returned to us towards the end of October 2010 with the NHS stamp and comments. These were latterly countersigned by

BM and this set of agreed signed FBC/Appendix K package drawings formed the basis of the Stage 3 Contract; these were therefore also the basis for the Stage 3 technical design and construction packages.

5. PROJECT CONTRACT BIBLE (2010)

5.1 The Notice to Proceed to Stage 3, was received by Neil Murphy, our NA-IBI Project Director, on or around 25 January 2011; a disk containing the final agreed 'Project Bible' was delivered to our office the following day.

5.2 This contained the Instruction to Proceed, Employers Requirements (ERs) & Logs and various related schedules and appendices for Stage 3.
Effectively, this was an updated version of the 2009 Project Bible containing the agreed Stage 2 detailed design and updated agreed contractual position on the ER's and various Logs.

The document entitled 'NSGH 2010 Instruction To Proceed Bible – Index' **(A52701443 - NSGH 2010 Instruction to Proceed Bible – Index – Bundle 43, Volume 4, Page 681)** summarises the relationship between the 2009 Project Bible, and which Contract Data takes precedent at Stage 3.
The document entitled 'Appendix 2 & 3 of the 2010 Instruction to Proceed letter' **A52701561 – Appendix 2 & 3 of the 2010 Instruction to Proceed letter Bundle 43, Volume 5, Page 135** is the Contractual Instruction from GGHB; the Building Contract contained within the 2009 Project Bible is still the Contract.

5.3 The updated 'Project Bible' included the agreed Appendix K drawing packages, which were bound into the updated Project Contract Bible (2010) within the following folders;

- Folder U - Appendix K (Masterplan and Architecture)
- Folder V - Appendix K (M&E Engineering)
- Folder W - Appendix K (Civil and Structural Engineering)

5.4 Of particular note are the updated **Folder B – Logs**, and **Folder J - Volume 8 ADB.**

Folder B – Logs

These contain the update to the Logs, including updated and final versions of the following;

- The BIW Log (2010 ItP) - (FINAL)
- The Clarification Log (2010 ItP) - (FINAL)

Of note on page 7 the 2009 position on the ward air change rates is the same, 'Please confirm mechanical air change rate for the ward tower.

A typical ward in the tower has the following air change rates to either meet the ADB requirements or achieve the environment conditions:

- Bedrooms 2.5 ACH (related to ensuite extract rate and air volume for chilled beam unit loadings)
- Ensuites 10 ACH
- Clean Utility 6ACH
- Disposal Hold 10 ACH
- Pantry 6 ACH
- Dirty Utility 10 ACH
- Equipment store
- Cleaner 5 ACH
- Nurse base Up to 12 ACH to balance extract from utility spaces, etc
- Office/meeting 4 ACH

2009 Project Bible

- Refer to the M&E Clarification Log in Contract Data Part 1 for typical single bed ward.

2010 ItP Project Bible

- Refer to the M&E Clarification Log (2010 ItP) in Folder B1 of The Instruction to Proceed Project Bible.'

- **A52701586 – M&E Clarification Log 2010 - Bundle 43, Volume 5, Page 431**

Of note, the 2009 position on the ward air change 'derogation' is the same, with reference to page 3-4,

'Ward Air change to be 6AC/HR, currently shown as 2.5AC/HR which is not in compliance with SHTM 03-01. **Agreed**

Brookfield proposal as outlined within the bid submission is to incorporate chilled beams as a low energy solution to control the environment which do not rely on large volumes of treated air or variable natural ventilation. All accommodation is single bedrooms and therefore the need for dilution of airborne microbiological contamination should be reduced (rooms could also be at slightly negative pressure to corridor).
Providing 6 air changes is energy intensive and not necessary. **Agreed**
The proposal is accepted on the basis of 40 litres per second per single room (8 litres per second per second) for one patient and four others.

Joint review to be carried out between the Board and Brookfield of the energy model to determine any impact on the energy target/BREEAM rating.

Brookfield, however, remain responsible for achievement of the energy target/BREEAM, with £250,000 added to the contract sum in this regard.

Negative pressure to be created in the design solution
Energy model based on the agreed 2009 position. **Agreed'**

- The RFI Log (2010 ItP) - (FINAL)
- The Sustainability Log (2010 ItP) - (FINAL)

Folder J - Volume 8 ADB

The Contract versions of the Environmental Data Schedules are included within **Folder J.** These schedules represented the agreed environmental data, which at the time of FBC consisted of the approximately 500 odd room types.

- Environmental Matrix Report A52701634 – NSGH Environmental Matrix November 2010 Bundle 43, Volume 5, Page 782
- EDS ItP Batch 1 - ZBP updates_141210 (UKWOBD0002_00021695 - 11. EDS ItP Batch 1 - ZBP updates_141210.xlsx) **(This will not be bundled).**
- **A52701584 – Batch 2 ZBP Updates - Bundle 43, Volume 5, Page 411.**

EDS ItP Batch 1 - ZBP updates_141210 contains only the environmental data for each room type. With the application of a filter on **Column A – Dept Code**, the data for each room type within a department can be located. The codes for the departments of interest to the SHI are as follows;

- NSGH-HOW - Haematology Oncology Ward - Ward 4B QEUH
- NSGH-RENO/M – Renal Ward - Ward 4C – QEUH
- NSGH-GENW - Generic Inpatient Wards - Level 5 – QEUH
- NSGH-CCW – Critical Care QEUH
- NCH-SCHW - Schiehallion Ward and Day Case Unit - Ward 2A & 2B – RHC
- NCH-CCW – Critical Care - PICU – RHC

EDS ItP Batch 2 - ZBP updates_141210 contains all the room data, including the room activity data, and the room character/finishes data. With the application of a filter on **Column E - Briefing Room Code**, which is the ADB briefing code from the Template RDS, links can be tracked back to the Template RDS.

For the NSGH Adult single bedrooms, I can see that 3 further variations of the original B0305A code have been identified as different to the generic single bedrooms.

- B0305A - NSGH-GENW - Single-bed room – Generic Ward
- B0305A1 - NSGH-STW - Single-bed room – Stroke Ward
- B0305A2 - NSGH-RENO/M - Single-bed room – Renal Ward
- B0305A3 - NSGH-HOW - Single-bed room – Haematology Oncology Ward

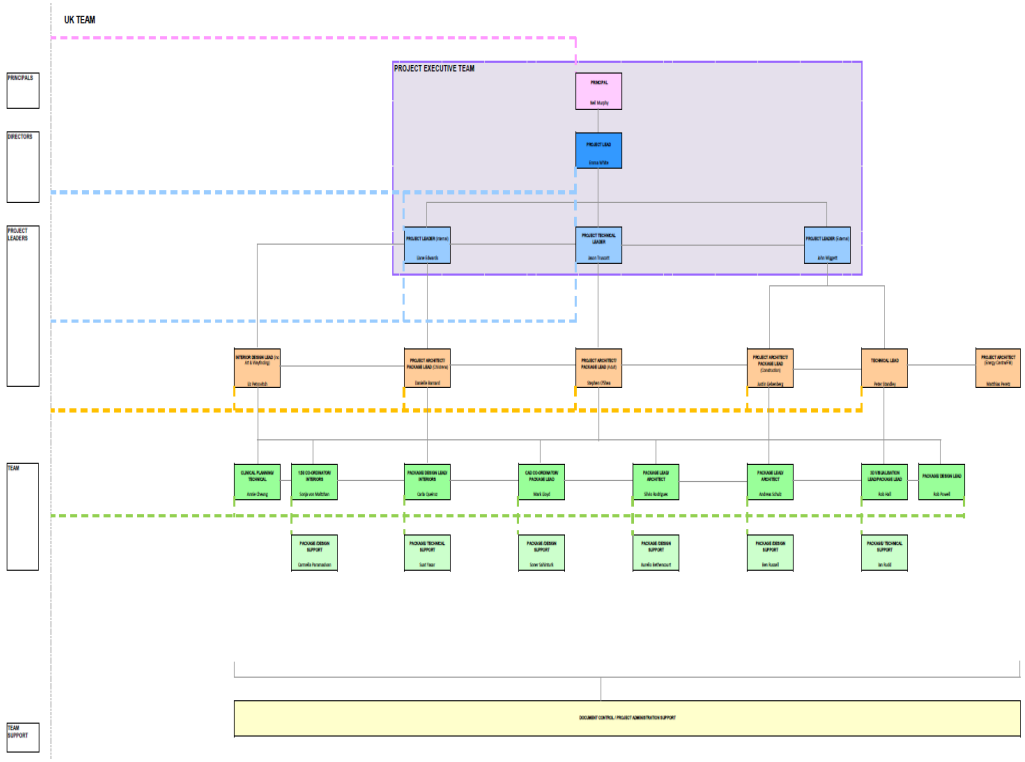
It should be noted that the data agreed and contained in these Environmental Data Schedules formed the basis of the Stage 3 Room Data Sheets.

6. STAGE 3 - CONSTRUCTION OF THE ADULT AND CHILDREN'S HOSPITALS

6.1 Team Structure

A similar team structure continued to operate in Stage 3. However, as this stage involved more detailed design and production delivery, the team of Project Leaders took on more responsibility for their respective "whole project" ("WPP") packages. The team was accordingly structured beneath the Project Leaders with a group of WPP leads (e.g., External Envelope, Internal Fit-Out, Interior Design, the Energy Centre etc), and then to a team of specific package architects who were each designated internal and external packages according to their respective skills and expertise. Where possible, the stage 2 department leads maintained their UGM lead roles through the second stage of the 1:50 design process.

The structure of the senior IBI team during Stage 3 was as follows.



Stage 3 Organogram showing IBI team structure

6.2 Programme Summary

Stage 3 of the project commenced in December 2010 and completed in January 2015. IBI continued to lead on the 1:50 Design Stage, which required "sign off" approval by GGHB. The process of Reviewable Design Data ("RDD") approvals continued through Stage 3 from 2011 to 2014. We assisted BM in establishing an RDD Tracking Schedule to initially agree all

the drawings which were to be submitted through this review process. In addition, key statutory authority approvals were required from Planning and Building Control. NA-IBI and BM were responsible for coordinating over 40 Building Warrant processes. We also participated in multiple package review workshops with BM over the course of Stage 3 to agree the final Tender and Construction packages.

And of course, Stage 3 involved the mammoth task of the production and coordination of all the drawings required for the construction of the Hospitals. As well as the review and coordination of the subcontractor design packages.

6.3 1:50 User Groups including Pre-User Group Meetings and Process

The Stage 3 1:50 process for the Adult and Children's Hospital needed to consider further levels of detail, including the sequencing requirements for construction, as well as addressing the potential impacts of moving FF&E items, such as sanitaryware, which could have an impact on the production information which was in progress for the civils and structural design.

The Stage 3 set-up needed to consider these requirements, which necessitated another re-organization to the sequencing of the meetings; these were adjusted to reflect the construction programme. This brought forward the departments located in the basement, Adult podium and Children's departments which sat within the Adult podium structural construction zones.

The Adult inpatient ward tower and majority of the Children's departments were in the later structural construction zones.

The 1:50 process became a vastly more complex entity, and required an increased level of management control to ensure the competing and overlapping requirements could be met within the overall Stage 3 programme.

The only way it could work successfully was for all parties to work collaboratively together.

I developed a strategy of Pre-User Group Meetings (Pre-UGM), which was the forum for all parties to gather and review the first draft of the 1:50 'fully loaded' FF&E plans. Each core participant had an action to review the draft

drawings, and provide their comments, ensuring that they covered the key issues we needed to address.

The Pre-UGM key **Activity Checklists** fell under the following headings;

1. Room Assignment Review (lead NHS/NA)
2. Equipment Review (lead NHS/Currie & Brown)
3. M&E Design Review (lead ZBP/Mercury/NA)
4. Structural Design Review (lead WSP/NA)
5. External Envelope Review (lead NA)

The outputs of the Pre-UGMs was a set of fully marked-up 1:50 FF&E plans which contained the comments of each key party, to enable us to progress with updating the design to the agreed comments prior to issue for the final round of User Group Meetings (UGMs).

The meetings maintained the same structure, which can be seen from the example agenda, **A52701596 – Pre-UGM Review Workshop Agenda - Bundle 43, Volume 5, Page 582.**

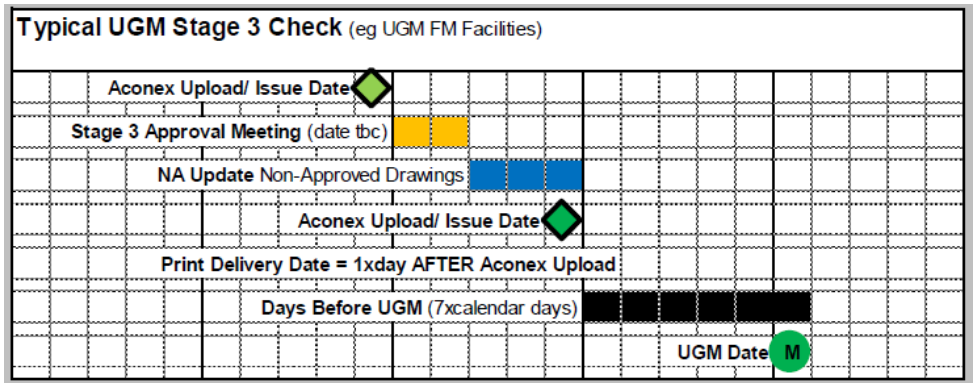
The Pre-UGMs ran over an 8-week time period, from 20/01/2011 – 10/03/2011 (refer to **A52701595 – Fully Loaded Pre-UGM - Bundle 43, Volume 5, Page 580**) for the full department lists). I have located and include as supporting documents the meeting minutes and drawing mark-ups for the departments of interest to the SHI, which took place in the following Pre-UGM weeks.

Pre UGM Week	Department	Building
1	Critical Care	Adult
4	Renal Inpatients & Day Unit	Adult
6	Haemato-Oncology Ward	Adult
6	Critical Care (PICU)	Children's
8	Inpatient Wards	Adult
8	Schiehallion Ward & Day Unit	Children's
8	Schiehallion Radiotherapy Treatment Suite	Children's

A summary of the whole process is captured within the 1:50 Protocol Document, which I drafted; this was reviewed and agreed by all parties (**A52701604 – NSGH 1:50 Department Design Protocol Document Rev 02 - Bundle 43, Volume 5, Page 619**). There are multiple Reference Documents and hundreds to thousands of drawings produced during this process, all of which I can locate if necessary, however it should be noted that this is also a time-consuming exercise given the vast quantity of documentation.

My role was to set up the process, and I also sat in a number but not all of the Pre-UGMs. One of the actions I took away from the meetings as they progressed was the concerns of both BM and the NHS team about how we could maintain our Quality Assurance (QA) procedures throughout this process. In response to this I developed a fully detailed 1:50 UGM Drawing Checking and Approval Programme (**A52701603 – Nightingale Associates - 1:50 UGM Drawing Checking & Approval Programme - Rev. 01 - Bundle 43, Volume 5, Page 628)** which took each department through 2 stages of an NA internal review and checking process before the department drawing package was uploaded to Aconex, allowing BM the time to print the drawings and deliver these to the NHS, a minimum of 3 weeks prior to the UGM.

The final Stage 3 checking took place on site, with BM, NA and the NHS team reviewing each department drawing package to validate its acceptance for presentation at the UGM. Any non-approved drawings would need to be updated and re-issued prior to the UGM date.



Extract from NA-SH-012_rev 01

This process was also key to the NHS project team to ensure the huge amount of time required from their clinical users was focused, with a lot of preparatory work taking place outside of the UGMs, minimizing the impact on the clinical users' time.

1:50 User Group Meeting Timetables

The planning of the user meetings was agreed within another User Group Meeting Timetable, **A52701598 – NSGH & NCH User Group Meeting 1:50 Fully Loaded Stage (Week One) Rev. 04 - Bundle 43, Volume 5, Page 583.** The meetings were scheduled to run from 21/03/2011 – 01/07/2011.

Given the level of detail and comments required during the final round of UGMs, NA-IBI's meeting attendees expanded; the senior architects were still involved but supplemented by other members of our team. Whilst there was still a focus on managing the equipment, given the construction programme and impacts on other approval processes, such as building control, other team members joined the department leads to ensure any outstanding associated design issues were highlighted and agreed with the users.

Currie & Brown attended all of the UGMs to support with recording any change control and produced a UGM Tracker to support the process. The final version 1:50 Change Control Tracker - Version 11 **A52701599 – Aconex - 1:50 Change Control Tracker - Version 11 - Bundle 43, Volume 5, Page 599** was received on 08/07/2011.

Reference can be made to this tracker for an easier guide to the level of comments received during the UGMs. The departments of interest to the SHI can be located sequentially on the following tabs, with a summary below of comments of note within these departments;

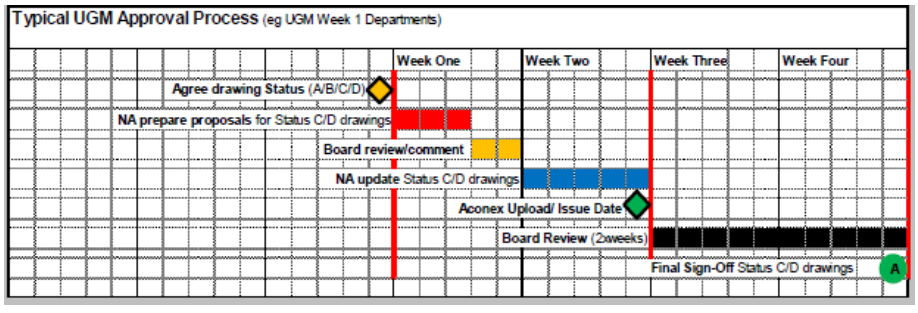
- **Critical Care** – 'omit front wall and double doors' to CCW 018/ CCW 053 - Linen Stores; '(see sketch SK-400-525-01) - Reinstate WC formed from room CCW101'
- **Renal Inpat**.- ' add hoist' to RENW-008 - Single Bed (Higher Acuity)- no en-suite, RENW-021; Consumables store/equipment bay 'REDRAW- swap with RENW-266. Will become single sided consult/exam with space incorporating area of RENW-245'; and a number of additional glazed screens
- **Haemato** – '14 air changes/hr' is noted as a requirement to room HOW-003 - Pentamidine Treatment
- **NCH PICU** – 'Omit nitrous oxide from pendant, and omit transport ventilator' generally to each bedspace (bed bay and single beds)

- **Schiehallion** – a number of changes were requested to omit scrub sink to DCU-007 - Day Stay Ward; change trough sink to whb to room DCU-011 - BMT Day Ward; Enlarge to accommodate use as "hot" toilet - separate drainage stack - DCU-013 - Staff WC; change trough sink to whb generally to all consult exam rooms; Blind required on window, but cannot be interstitial due to leaded glass to the Relatives Bed in the Radiation Shield Bedroom Area; add glazing to SCH-039, which is a corridor in the Teenage Cancer Trust (TCT) area; room SCH-042 - En-suite is required to be 'Hot Toilet'.
- **NSGH Ward** – no changes noted, only minor comments to cupboards

  I have located and include as supporting documents the drawing mark-ups for the departments of interest to the SHI. Again, should copies of any other commented drawings be required I have access to all mark-up record drawings within our internal records.

1:50 UGM Sign-Off

The 1:50 UGM reviews generated a set of mark-up drawings, which were stamped as a record by the NHS Project Team 1:50s Lead, Frances Wrath. As per the agreed process, which can be seen at the bottom of the1:50 UGM Drawing Checking and Approval Programme (**A52701603 – Nightingale Associates - 1:50 UGM Drawing Checking & Approval Programme - Rev. 01 - Bundle 43, Volume 5, Page 628**), any drawings receiving a status C/D needed to be reviewed and a proposal to address the comments agreed with the NHS Board prior to the update and re-issue of the drawings. The Board then had a further 10 working days to review the updated drawings prior to the 'final sign-off' at this stage



Extract from NA-SH-012_rev 01

The stamped meeting record set of drawings were then scanned and issued to all parties by BM on Aconex. These all have the signature of Frances

Wrath, and in general contain a second signature from I believe one of the department users.

The updated drawings were re-issued and stamped again, generally as agreed subject to the following;

‘These layouts are agreed subject to the provision and agreement of the outstanding elevations as identified in the 1:50 Room Elevation Schedule Group B and the incorporation of any changes as noted therein to those elevations already reviewed. ‘

It should be noted that the package issued for the 1:50 UGM Sign-Off consisted of the set of 1:50 fully loaded FF&E department plans, and the 1:50 Room Elevations.

The original 1:50 Room Type plans agreed in Stage 2 were updated to co-ordinate with the 1:50 fully loaded plans, and to include the elevations of each wall in the room; these became the set of 1:50 Room Elevations.

Additional 1:50 Room Elevations were identified and produced after the completion of the 1:50 UGMs. These were issued and reviewed under the RDD process.

6.4 Room Data Sheets

Concurrently to co-ordinate with the 1:50 fully loaded department process, the Room Data Sheets (RDS) began the next stage of their production.

The 1:50 Room Types agreed at Appendix K/FBC were templated in terms of both their layout, and the data within the room; the drawing models were linked to the project database, which had migrated to Codebook, from ADB Manager, at the start of the 1:50 Room Types production.

Codebook retained the Template RDS data; the agreed environment data, contained within EDS ItP Batch 1 - ZBP updates_141210 and EDS ItP Batch 2 - ZBP updates_141210 was reimported back into the database. **(These will not be bundled).**

As noted within the NSGH 1-50 Department Design Stage_Protocol Document_rev 02, the **Assigned Room Types Schedule** (**A52701601 – Nightingale Associates - Codebook Report - Assigned Room Type Schedule Rev. 02 - Bundle 43, Volume 5, Page 627**) was reviewed and agreed with the NHS. This linked the 1:50 room types to the multiple occurrences of each room in the building, and formed the starting point of the 1:50 fully loaded department and the full department RDS.

Essentially the data was copied to each room, and then the same process of exporting the environmental data to allow ZBP to check, review and return commenced.

The full department RDS production followed the process described below, which has been extracted from the supplementary RDS Paper I produced for the SHI.

Full Department RDS Stage - December 2010 to March 2015 – Post Appendix K RDD Stage

Revision 01 was submitted as a draft for information only as part of the Pre-UGM 1:50 Fully Loaded Department Meetings. At this stage the room character/finishes page had been omitted, as the Appendix K Finishes Strategy Plans represented the agreed project finishes, and the environmental data was under review by ZBP so was not included. This was the first issue of the full Department RDS, i.e. there was an RDS for each room, including lobbies and corridors, and the RDS packages were linked to each Department.

Revision 02 of the RDS included the updated ZBP/TUV-SUD environmental data. We produced updated RDSs and issued these along with the sets of 1:50 Fully Loaded Department plans for each department. The package of documents was then presented to clinical users in the final series of UGMs (UGM 6)

Revision 02 was updated with the Brookfield/Multiplex comments, and any comments received in the UGMs and re-issued as Revision 03, which was formally issued to GGHB as part of the RDD review of the RDS. Revision 03, or the final numbered revision of the RDS, was the version returned to us which was stamped, approved and signed with comments from the GGHB Project Team.

Revision A was issued in or around September 2012 for T3/construction. This revision contained updated M&E environmental matrices which incorporated further comments from the NHS/BM/MEP M&E Technical Review workshops. In addition to align with the construction co-ordinated design.

I understand that the M&E comments related to construction coordination issues and included some technical updates. We were not required to attend the M&E workshops, however we were required to update the co-ordinated RDS following these workshops. Any updates required were issued to us on Aconex; we exported the EDS, issued these to ZBP to update with their comments, and then produced a new version of the RDS which was issued to incorporate the updated EDS supplied by ZBP.

Revision B was issued in or around June 2013. This revision contained updates required to co-ordinate with the construction design/review comments.

Revision Z1 was issued in or around March 2015 as the "as built" issue (i.e. it represents the final issue of the RDS and the version which was constructed).

The final issue of Revision Z1 included BM's review comments and was uploaded to Zutec to be included in the Handover records/O+M Manuals.

Provenance and Access to Revisions

All revisions of the full department RDS were submitted to the NHS and Design Team on Aconex.

Revision 01 was submitted as a draft for information only as part of the Pre-UGM 1:50 Fully Loaded Department Meetings.

Revision 02, 03 and Revisions A, B and Z1 were submitted to the NHS by BM under the RDD process on Aconex for NHS review and approval. (The exact revision varies across the departments, in general the repeating Generic Wards in the Adult Ward Tower had less revisions as the standards were agreed within Level 05).

While we have access to all of the submitted versions, we did not receive any further NHS approved and signed versions beyond the reviewed RDD documents with NHS comments we received in or around May 2012 from the BM Document Controller. I understand that this set represented the RDD NHS approval of the RDS, and any further revisions were primarily to co-ordinate the RDS with comments made in other technical review meetings, or to incorporate the construction co-ordination of the design. I do not believe these materially impacted the design principles captured within the set of NHS signed and agreed RDS we retained copies of and have shared with the Inquiry. However, it should be noted that BM ultimately retained ownership of the management of the Documents on Aconex, and the submission under RDD Workflows to the NHS, and have access to all signed versions, and copies of the relevant Aconex transmittals.

The ‘signed’ RDS were stamped by the NHS Board signifying its approval and signed by Frances Wrath. Ms Wrath was the NHS Lead in the RDS process and was responsible for liaising and consulting with the wider GGHB team, including their relevant internal stakeholders. Other Technical Advisors, which I understand were led by and included Currie & Brown, supported the NHS Board with the review and approval of the environmental data within the RDS.

Between four to seven revisions of RDS were produced for each department (each revision is around 400 pages long) and, while we have access to all revisions of RDS we produced for each unit, we only have access to the following signed copies of the departments of interest to the SHI:

- Revision 03 of the RDS for the Schiehallion Unit (note that there is no NHS stamp)
- Revision 03 of the RDS for the Haematology-Oncology Ward
- Revision 02 of the RDS for Ward 6A
- Revision 04 of the RDS for PICU
- Revision 04 of the RDS for CCU
- Revisions 04 of the RDS for the Critical Care Ward
- Revision 03 of the RDS for the Day Case Unit, Ward 2B
- Revision 03 of the RDS for the Fifth Floor Generic Wards A – C and the Support and Communication Wards
- Revision 01 of the RDS for the Sixth Floor Generic Wards 1 – 3
- Revision 04 of the RDS for the Acute Receiving Unit (Isolation Room)
- Revision 05 of the RDS for the Cardiology Ward (Isolation Room)
- Revision 04 of the RDS for the Observation Ward (Isolation Room)
- Revision 03 of the RDS for the Inpatient Wards (Isolation Room)

6.5 Reviewable Design Data

We were obliged to provide further detail of the items listed under Contract Data as the agreed set of Reviewable Design Data (RDD).

This included the detailed design of the packages held within the Appendix K/FBC submission, as well as other items such as samples and Subcontractor proposals.

The RDD approvals continued throughout Stage 3 from 2011 to 2014 and were managed by Multiplex on Aconex. The scanned/NHS signed drawings were generally uploaded by Multiplex as a record copy and distributed to the Design Team.

We assisted Multiplex with the set-up of the RDD Tracking Schedule to initially agree all the drawings which were to be submitted through this review process. Thereafter, Multiplex expanded and managed this schedule to log the history of all the RDD drawing approvals. This can be used to track the relevant Aconex Transmittal as required.

RDD Strategy

I set-up the initial RDD Strategy for the architectural packages, which followed on from the approval of the 1:50 fully loaded department plans in

August 2011. This strategy was linked to the BM Procurement programme and was initially structured to present the updated architectural strategy packages to the GGC project team, building on the Appendix K package reviews (refer to **A52701594 – Nightingale Associates - Design Strategy Review Program - Bundle 43, Volume 5, Page 551).**

RDD Workshops

Following on from the successful 1:50 Pre-UGM process, we then agreed to progress with a series of 'Pre-RDD' workshops, to present the RDD packages to the GGC Project Team. I developed a proposal for the timetable of RDD Workshops, which we programmed out for the whole of 2012 **A52701597 – RDD Workshop Timetable for 2012 - Rev 06 - Bundle 43, Volume 5, Page 554.** These were structured around the Project Design Group Meetings, and covered the following subjects;

RDD Workshops – Architectural (2012 Summary)

- Acoustic Strategy
- Desk Strategy (1:50 functional review)
- Fixing Heights & Bedhead Strategy (follow-up)
- Courtyards (inc DCFP Roof Garden)
- Entrances (inc external thresholds) & Helipad
- Link Bridges (Neo-Natal & Neurology)
- Interstitial Blinds
- Interior Design Group (1) - Strategy Overview
- Interior Design Group (2) - Adult Strategy
- Interior Design Group (3) - NCH Strategy
- Interior Design Group (4) - Adult Detail
- Interior Design Group (4) - Adult Atrium Overview
- Interior Design Group (5) - NCH Detail
- Interior Design Group (5) - NCH Atrium Overview
- Interior Design Group (6a) – Components
- Interior Design Group (6b) - Sign-Off
- RDD Workshop - Interior Design Group (7) - Sanctuaries, Adult Atrium Core & Bridge Link Cladding
- Interior Design Group (9) - Wayfinding Signage Strategy Overview

- Interior Design Group (10) - Wayfinding Signage Strategy Adult
- Interior Design Group (11) - Wayfinding Signage Strategy NCH
- 1:50 Internal Finishes (PG1) - NSGH Critical Care, CCU, AAU, ED
- 1:50 Internal Finishes (PG2) - NSGH Radiology, Stroke, MDU, OPD Pre
- 1:50 Internal Finishes (PG2) - NSGH Theatres, Nuclear Medicine
- 1:50 Internal Finishes (PG3) - NSGH Renal Inpatients, Haem-Onc
- 1:50 Co-ordinated Ceilings (PG1) - NSGH Critical Care, CCU, AAU, ED
- 1:50 Co-ordinated Ceilings (PG2) - NSGH Theatres, Radiology, Nuc Med, Stroke, MDU, OPD Pre
- 1:50 Co-ordinated Ceilings (PG3) - NSGH Renal Inpatients, Haem-Onc
- 1:50 Co-ordinated Ceilings (PG4) - NSGH Typical Ward, NCH Radiology, Theatres

*NOTE the remaining production zones/departments not listed above would have been reviewed and agreed in 2013.

RDD Workshops - M&E (2012 Summary)

- M&E Zone E (Levels 0, 1, 2)
- M&E Zone C - Risers M12, M40, M14, M13, M115b
- M&E Zone B (Levels 0, 1, 2,3)
- M&E Zone C - Risers M12, M40, M14, M13, M115b
- M&E Zones B – Risers
- M&E Zone F - Risers M27, M30, M38a
- M&E Zone F & Zones E, F, H, J (Level 4)
- M&E Zones E, F, H, J Typical Ward & Cores (Levels 4-11)
- M&E Zones E, H - Level 3 Plantroom 31
- M&E Typical Ward - Risers T3, T5, T11, T13, T14
- M&E Zone F - Level 2 Plantroom 22
- M&E Zone J Risers (Levels 0-3)
- M&E Zone J, Zone K Cores (Levels 4-11)
- M&E Basement Plant
- M&E Zone K - Levels 4-11 Risers T2, T4, T6, T12, M25
- M&E Zone F - Level 3 Plantroom 32
- M&E Zone J - Level 3 Plantroom 33
- M&E Zone C - Risers M33, M22, M36

- M&E Zones A, B - Level 4 Plantroom 41
- M&E Zone C - Level 5 Plantroom 41A
- M&E Zones H, E, J, F - Level 12 Plantrooms 121-124
- M&E Plantroom 21

*NOTE the remaining production zones/plantrooms not listed above would have been reviewed and agreed in 2013.

RDD Workshops - Combined Strategy (2012 Summary)

- Access & Maintenance Strategy (7 in total)
- Landscape - 2nd Courtyards meeting and DCFP
- Landscape - Arrival Space/Central Park
- Landscape - Childrens Park/A&E
- Landscape - External wayfinding and signage

RDD Workshop – Equipment (2012 Summary)

- Equipment – Pendants
- Equipment – Canopies
- Equipment - Surgeon Panels
- Equipment - Theatre Lighting

Thereafter the workshops continued until the completion and acceptance of the full set of RDD documents. The submissions followed the agreed project process and were planned and monitored on the A52701571 - NSGH Adults and Children's Hospital RDD Master Schedule **Bundle 43, Volume 5 – See Paper Apart.**

The BM Design Managers managed this schedule with the support of their Document Controllers. All RDD document submissions would be issued to the GGC Project Team on Aconex through workflows. The final RDD Schedule I have access to on Aconex is dated 01/05/2014 and had previously been shared with the SHI (RDD SCHEDULE AS AT 01.05.14) **(A52701430 - NSGH Adults and Childrens Hospital - RDD Master Schedule Reviewable Design Data - Issued for Approval - 02 May 2014 – Bundle 43, Volume 4, [Paper Apart])**

This document can be used to track the history of the RDD document issues, and using the Aconex Transmittal References RDD Packages can be easily located and downloaded.

6.6 1:50 Reflected Ceiling Plans

Background - Bid Stage

The process for the development of the Ceiling Plans commenced during the Bid Stage with the proposals for 1:200 Ceiling Strategy Plans for a number of typical departments which were part of the ITPD tender submission. At Bid Stage they were supported by an Outline Specification; this formed the starting point for Stage 2. The Outline Specification stated the following for Ceilings;

'3.2. Ceilings

The various types will incorporate the following design criteria;

- Acoustic performance
- Minimum periods of fire resistance
- Requiring security protection, (where required in HTM's/Volume 2/1: Employer's Requirements [Hospitals])
- Requiring radiation protection,
- Requiring moisture resistance to areas of high humidity

Radiation Protection and the requirements for lead-lining and Radiofrequency shielding will be provided to meet the Board's Radiation Protection Adviser's requirements.

The framework is to accommodate and support all of the ceiling mounted fixtures specified in the ADB Room Data Sheets and shown on the 1:50 layouts.

Ceilings heights generally to be 2700mm. In addition, certain rooms will be 3000mm as required in 7.3.3. of the Employer's Requirements, and to comply with Volume 2.1 Appendix E: ADB Room Data Sheets

GENRALLY:

The Ceiling Type Strategy has been developed in response to Volume 2/1: Employer's Requirements (Hospitals) - Section 7.3 Ceilings, Volume 2.1 Appendix E: ADB Room Data Sheets and to ensure compliance with SHTM 60 Ceilings. These are performance related ceiling types and include options for Art Opportunities. A List of the proposed Ceiling Types is listed below;

A: Plasterboard Ceiling

Smooth, imperforate and jointless membrane with concealed grid system, normal humidity and Class 1 surface spread of flame (**SHTM 60 CATEGORY 1**)

B: 600x600mm Moisture-resistant Ceiling Tiles

Imperforate and jointed membrane with concealed grid system, normal humidity and Class 1 surface spread of flame (**SHTM 60 Category 2**)

C: 600x600mm Mineral Fibre Tiles

Imperforate and jointed membrane with concealed grid system, normal humidity and Class 1 surface spread of flame (**SHTM 60 Category 3 & 5**)

D: 600x600mm Mineral Fibre Tiles

Imperforate and jointed membrane with exposed grid system, normal humidity and Class 0 surface spread of flame (**SHTM 60 Category 4**)

E: 600x600mm Mineral Fibre Tiles

Jointed membrane with exposed grid system, normal humidity and Class 1 surface spread of flame (**SHTM 60 Category 4 & 6**)

F: 600x1200mm Suspended Mineral Tile Plank System with perimeter plasterboard margin detail

Imperforate and jointed membrane with exposed grid system, normal humidity and Class 0 surface spread of flame (**SHTM 60 Category 4**)

G: 300x1200mm Suspended Mineral Tile Plank System with perimeter plasterboard margin detail

Imperforate and jointed membrane with exposed grid system, normal humidity and Class 0 surface spread of flame (**SHTM 60 Category 4**)

H: Suspended Fabric Stretch Ceiling System with Backlights (Art Opportunity)

Class 0 surface spread of flame.'

Stage 2 Design

During Stage 2 the agreement of the 1:200 department plans with the users allowed a 'design freeze' to commence the production of the Appendix K design strategy submissions. For the strategy plans, including ceilings, these took the form of a set of 'whole building' strategy plans, which were at a scale of 1:300 to fit on the largest paper size, an A0 sheet (841 x 1189 mm). The Ceiling Strategy Plans, from Basement to Level 6, supported with an updated Outline Specification NA-SP-001_01 NSGH Outline Specification (**A52609968 Bundle 43, Volume 6, Page 23**) and the more detailed NBS specifications NA-SP-K40 **(A52701644 – NBS Specification - Demountable Suspended Ceilings Bundle 43, Volume 5, Page 835)** (for demountable suspended ceilings) and NA-SP-K10 **(A52701641 – NBS Specification - Plasterboard Dry Lining - Partitions and Ceilings Bundle 43, Volume 5, Page 811)** (for plasterboard ceilings), were reviewed with the NHS initially during the Appendix K Workshops, and then agreed as part of the Appendix K Architectural Drawing submission.

Stage 3 Design

For Stage 3, we initially expanded the Ceiling Strategy Plans to cover the whole building, completing the missing adult ward tower levels, which required the replication of the agreed Level 6 generic ward design principles on the remaining levels. We also adjusted the scale to the more standard 1:200 scale, which co-ordinated with the 1:200 department A1 sheets, and

then developed the full set of 1:200 Ceiling Finishes Strategy Plans; this was supported with an updated NBS specification.

This package was reviewed again with the NHS project team in Pre-RDD Workshops, and submitted for RDD approval during the early part of 2012. The approval from the NHS was processed a number of months later and received on Aconex on or around 3rd July, 2012, refer to **A52701592 – Aconex - Fwd: Final (WF-001588) RDD - FIRST SUBMISSION - Bundle 43, Volume 5, Page 514** and the associated drawing attachments.

From the middle of 2011 we also started to plan for the production of the remaining suite of 1:50 scale construction internal fit-out packages (setting-out including internal partitions; ceilings; finishes), which in our design process typically follow the user approval of the 1:50 fully loaded FF&E plans. The process set-up followed an initial sequence of key activities;

1. 1:50 fully loaded user sign off – this fixed the partition locations and the room layouts.
2. 1:50 internal setting-out – we commenced with the checking and setting-out of the sanitaryware, which fed into the buildersworks coordination process (refer to Slab Penetration Programme) **(A52701402 – Nightingale Associates - 2011+ Slab Co-ordination Combined Slab Programme Bundle 43, Volume 5, Page 953)**
3. 1:50 internal setting-out – we progressed with the initial drawing production, including adding partition types and setting-out dimensions.
4. 1:50 ceiling setting-out - thereafter we were able to commence the ceiling grid setting-out.

Due to the scale of the building, and the construction zone sequence dates, the key activities invariably overlapped. We were able to accommodate this by structuring our team with different package leads/teams.

1:50 Ceiling Process

As noted above, following the initial fixing of the partitions and the equipment layouts from the 1:50 UGM process, the 1:50 Ceiling production commenced with an initial grid setting-out issued by our ceiling team.

Thereafter, the M&E designers, in our case, a combination of ZBP and Mercury, developed their detailed M&E design. ZBP, in their role as the M&E

Engineer, produced the initial M&E designs, which consisted of the services systems design and performance specification requirements. Thereafter, the construction production and co-ordination was progressed by the M&E Subcontractor, Mercury.

The process of finalizing a co-ordinated reflected ceiling plan can be long due to the various responsibilities of each party involved in the process. As the Lead Consultant, our role was to 'lead' the process; to review and check the co-ordination of the ceiling layouts. This would entail receiving the CAD models from the M&E subcontractor, bringing them into our CAD model to check the M&E fixtures firstly aligned with the grid, and secondly did not clash with other mostly M&E items fitted to the ceiling. And then sending our coordinated comments back to be updated by the M&E team.

The M&E design process for the 1:50 reflected ceiling plans would usually start with lighting setting-out; lighting level calculations produced by the lighting engineer validated the lighting levels, ensured compliance and located the light fittings within the grid and in line with the agreed room layouts. Thereafter, the mechanical engineer would locate their fixtures; ventilation grilles, chilled beams etc. Other specialist M&E packages, such as sprinklers, nurse call and security, would normally follow later.

We developed a series of Package Co-ordination Schedules to manage the coordination process. RCP Programme_rev08 270213 **(A52701638 – Reflected Ceiling Plans Programme Rev. 08 – 27 Bundle 43, Volume 5, Page 803)** is the 1:50 Ceiling Co-ordination Schedule. The linear coordination process followed the sequence below;

- NA ISSUE REVISED GRIDS
- MER ISSUE 1ST DRAFT SERVICES FOR REVIEW
- NA ISSUE COMMENTS
- MER ISSUE 2ND DRAFT SERVICES FOR REVIEW
- NA ISSUE COMMENTS
- MER ISSUE FINAL RCP
- NA DIMENSION AND REVISE SHEETS, QA CHECK
- NA T3 ISSUE DATE

3WKS	3WKS	2WKS	2WKS	2WKS	2WKS	1WK	1WK
NA ISSUE REVISED GRIDS	MER ISSUE 1ST DRAFT SERVICES FOR REVIEW	NA ISSUE COMMENTS	MER ISSUE 2ND DRAFT SERVICES FOR REVIEW	NA ISSUE COMMENTS	MER ISSUE FINAL RCP	NA DIMENSION AND REVISE SHEETS, QA CHECK	NA T3 ISSUE DATE

Extract from RCP Programme_rev08 270213 **(A52701638 – Reflected Ceiling Plans Programme Rev. 08 – 27 Bundle 43, Volume 5, Page 803)**

If the M&E design team noted issues, for instance that they needed to adjust the grid due to the light or vent position requirements as a result of their calculations or technical design, we would update the ceiling grid to accommodate.

It should be noted that whilst the M&E items are shown on the NA-IBI 1:50 coordinated ceiling plans, we retained no design responsibility or liability for the M&E items.

The M&E detailed package drawings, including ventilation, lighting, small power, sprinklers, nurse call, medical gases, security, access control etc were all submitted to the client team, reviewed and approved under the RDD process. In addition, they were submitted to Building Control for Building Warrant approval.

The ZBP ventilation layout drawings contain the detailed design of the ventilation system; this includes the designed ventilation rate, which are noted in litres/second; the location of Hepa filters; the ventilation ductwork routing etc (refer to example drawings ZBP-ZE-04-PL-524-045_H **(A52701435 - NSGH Haemato-oncology Ward - 1:100 Mechanical Services Ventilation Layout Fourth Floor - January 2011 – Bundle 43, Volume 4, Page 671)** and ZBP-ZC-02-PL-524-023_D **(A52701403 – Mechanical Services, Ventilation Layout, Second Floor, NCH Schiehallion Ward Bundle 43, Volume 5, Page 957).** This level of detail would not normally be indicated on the coordinated 1:50 reflected ceiling plans, which are produced to demonstrate the spatial co-ordination of the fixtures and fittings installed on the ceiling.

The architectural part of the package, i.e. the suspended ceiling itself, was procured by BM; Armstrong (now Zentia) was chosen, as specified, to be the agreed ceiling manufacturer for the majority of the building including clinical

areas. Whilst the ceiling strategy was set-up to demonstrate compliance with the multiple SHTM-60 ceiling types, BM followed a simpler strategy on site where one ceiling tile product can cover the majority of performance requirements and the Biobloc Acoustic tile **A52701645 – Zentia Biobloc Acoustic Datasheet – Bundle 43, Volume 5, Page 849** was used in the majority of rooms where a 600x600mm grid was agreed; with its high acoustic, cleanability and hygienic performance which makes it suitable for Zone 4, very high-risk healthcare areas.

https://www.zentia.com/en-gb/project-gallery/queen-elizabeth-university-hospital/

Where plasterboard ceilings were required, these were specified to co-ordinate with the partition dry-lining system, which was supplied by Knauf; Knauf wallboard (standard), moisture board (high humidity/moisture areas), or sound shield (high acoustic areas) were installed, taped and jointed to provide a seamless finish, and painted with the same paint product specified on the walls of each respective room.

6.7 Sanitaryware and Taps

In healthcare design the initial brief for the types and quantity of sanitaryware and taps comes from the ADB room data sheets (RDS) and is contained within the **Schedule of Components by Room**.

These are directly linked to the HTM/HBN guidance documents; for sanitaryware and taps reference would have been made directly to **SHTM 64 Sanitary Assemblies (Please refer to Bundle 15, Page 100)**.

Typical Process – Clinical Wash Hand Basin

I will describe the typical process using the Clinical Wash Hand Basin (WHB) within the generic adult inpatient single bedroom.

Using the ADB Room Code **B0303** from NSGACL-Generic ADB Room Data Sheets_iss2_rev1 **(A52700892 - NSGH - Generic ADB Room Data Sheets - 07 April 2009 – Bundle 43, Volume 4, Page 1498)** the **Schedule of Components by Room** provides the brief requirement for the WHB and tap;

'**BAS101** - BASIN, medium, hospital pattern, vitreous china, no 1 tap holes, no overflow, integral back outlet, 500W 400D. HTM64LBHM

WAS107- TRAP, bottle, 1.1/4 in, plastic resealing. HTM64TRR1/P'

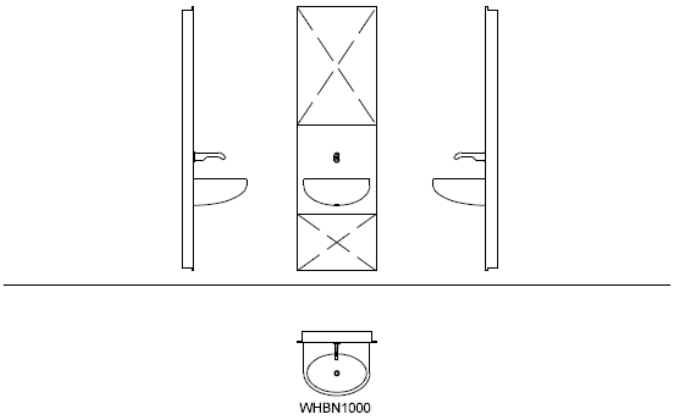
TAP892 - TAP bib, 2x8mm thermostatic mixer, automatic 1action, sensor operated non-touch. HTM64TBH6'

These align with the basin assembly described in **A52701636 – Excerpt – SHTM 64 – Sanitary Assemblies Bundle 43, Volume 5, Page 805** (page 44-46 **Sheet 7: Basin assemblies for use in connection with clinical procedures).**

As part of our equipment standardisation proposals at the beginning of Stage 2 we proposed the creation of a basin assembly 'union' of associated equipment components, which was implemented by Tribal within the Exemplar RDS. With reference to ADB Room Code **B0305A** from 01-06-10 NSGH Tribal ADB RDS_all rooms **(A52697944 - Excerpt - Room Data Sheets for B0305A, B0308A, B0607A, B0607A1, B0616A, B1602B, B1802C, B1805C, B1811C, B2011C – pages 88-148 – Bundle 43, Volume 4, Page 102)**; the **Schedule of Components by Room** confirms the proposed 'whole' basin assembly as follows;

'**WHBN1000 - WASH BASIN**, clinical, with non-touch panel 1mounted tap/s, assembly:1 x **BAS101**, BASIN, medium, hospital pattern,vitreous china, no tap holes, no overflow, integral back outlet, 500W 400D. HTM64LBHM 1 x **TAP894**, TAP bib, hospital pattern, integral thermostatic mixer, automatic action with sensor operation. HTM64TBH6 1 x **WAS100,** WASTE, unslotted flush-grated, metal, 1.1/4 in. HTM64WT1 1 x **WAS1000**, TRAP, concealed waste, for back outlet basins.'

As the 1:50 design progressed, we also captured our proposed equipment unions in a series of drawings; **'WHBN1000 - WASH BASIN, clinical, with non-touch panel mounted tap'** is captured on Schedule of Equipment Unions – Basins 1 - **A52701635 – Schedule of Equipment Unions - Basins 1 Rev. 08 Bundle 43, Volume 5, Page 802.**



1 No. BAS101 (grp 1) BASIN, medium, hospital pattern, vitreous china, no tap holes, no overflow, integral back outlet, 500W 400D. HTM64LBHM
1 No. OUT052 (grp 1) CONNECTION UNIT, switched, 13 amp
1 No. TAP894 (grp 1) TAP blb, hospital pattern, integral thermostatic mixer, automatic action with sensor operation. HTM64TBH6
1 No. WAS1000 (grp 1) TRAP, concealed waste, for back outlet basins.
1 No. WAS100 (grp 1) WASTE, unslotted flush-grated, metal, 1.1/4 in. HTM64WT1

CODE	WHBN1000
DESCRIPTION	WASH BASIN, clinical, with non touch panel mounted tap/s.

Extract from NA-XX-XX-AS-400-109_08

Sheet 7: Basin assemblies for use in connection with clinical procedures

The typical assembly requirements are:

1. Hospital pattern basin, integral back outlet, large or medium.
2. Washing hands and forearms under running water (therefore no plug).
3. Hospital pattern (lever-action) tap or automatically by sensor to avoid contamination.
4. Single horizontal spout, open nozzle and flow straightener.
5. Thermostatic mixer in hot supply (TMV3 D08-approved).
6. Connecting to concealed services.

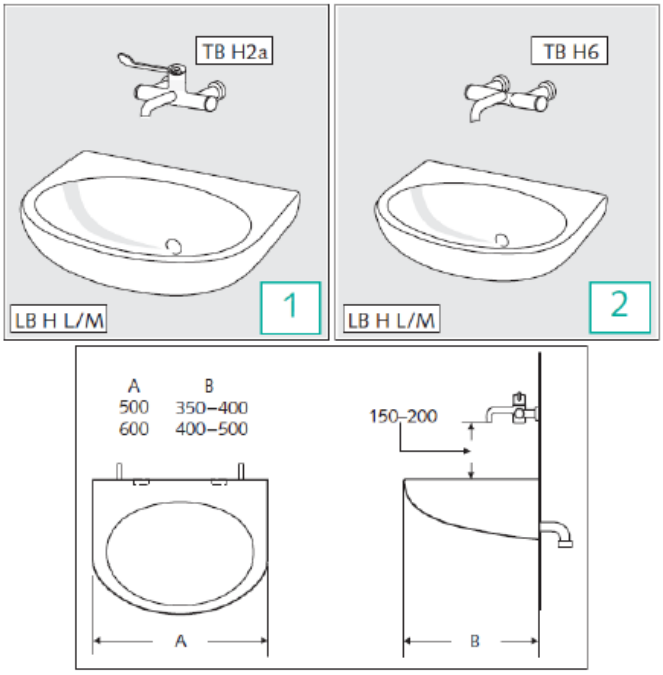


Figure 8: Basin assemblies for use in connection with clinical procedures

Note: See also HBN 00-02; 'Sanitary spaces', which provides guidance on the ergonomic requirements for individual sanitary assemblies and room layouts in healthcare facilities.

Page 44 SHTM64 Sanitary Assemblies **A52701636 – Excerpt – SHTM 64 – Sanitary Assemblies Bundle 43, Volume 5, Page 805**

As part of the Appendix K deliverables an NBS Specification 'NA-SP-N13 **(A52701652 – Excerpt - NBS Specification - Sanitary Appliance and Fittings Bundle 43, Volume 5, Page 938)** - Sanitary appliances & fittings'

was submitted and approved, including clause 340 describing the clinical WHB.

340 WASH BASINS - WALL HUNG

- Manufacturer: Armitage Shanks or equal approved.
  - Product reference: S2295 (LB-H/M) Contour washbasin.
- Size: 500 x 400 mm.
- Material: vitreous china.
- Tap/ Chainstay/ Overflow holes: no tapholes, no overflow, no chainstay hole. .
- Water supply fittings: S8210 (TBH2) Markwik ½" wall mounted mixer with 125 mm projection single flow swivel nozzle, anti splash outlet, 150 mm levers, concealed inlets.
  - Water supply temperature (maximum): 43°C.
  - Flow rate (maximum): 6 L/ min. at 3 bar.
  - Manufacturer: Armitage Shanks or equal approved.
    Product reference: S8210 (TBH2) Markwik ½" or equal approved.
  - Operation: Proximity sensor.
- Wastes: Plastic waste grating, chain, plug and screw stay.
  - Standards: To BS EN 274-1, -2 and -3.
  - Manufacturer: Armitage Shanks or equal approved.
    Product reference: S8745 Plastic waste grating,.
  - Size: DN 40.
  - Material: Plastics, self colour.
  - Tail: Slotted.
- Traps: Bottle.
  - Standards: To BS EN 274-1, -2 and -3.
  - Manufacturer: Armitage Shanks or equal approved.
    Product reference: S8910 1¼" Bottle trap, self colour plastics, multi-purpose outlet.
  - Size: 75 mm seal.
  - Material: self colour plastics.
  - Depth of seal (minimum): 75 mm.
- Accessories: Concealed support frame.

page 20 - NA-SP-N13 **(A52701652 – Excerpt - NBS Specification - Sanitary Appliance and Fittings Bundle 43, Volume 5, Page 938)**

Thereafter, in Stage 3 the N13 specification was reviewed and updated to BM comments as part of the tender/package procurement process.

340 WASH BASINS *WHBN1000; WHBN1006* - CLINICAL HAND WASH, WALL HUNG

- Manufacturer: Armitage Shanks or equal approved.
  - Standards : SHTM64 (LB H M)
  - Product reference: S2154 Contour 21 back outlet washbasin.
- Size: 500 x 400 mm.
- Material: vitreous china.
- Tap/ Chainstay/ Overflow holes:
  - No tap holes;
  - No chainstay hole; and
  - No overflow hole.
- Water supply fittings: SHTM64 (TBH6) bib mixer taps with integral thermostat and proximity sensor.
  - Water supply temperature (maximum): in accordance with SHTM 04-01 The Control of Legionella.
  - Manufacturer: As Wash basin.
    Product reference: A4554 Markwik 21 panel mounted mixer taps, integral thermostat, horizontal outlet.
  - Operation: Proximity sensor mixer.
- Wastes: back waste.
  - Standards: To BS EN 274-1, -2 and -3.
  - Manufacturer: As Wash basin.
    Product reference: S8750 outlet adaptor for Contour 21 basin, .
  - Traps: Bottle.
  - Standards: To BS EN 274-1, -2 and -3. SHTM 64 (TRR1/P)
  - Manufacturer: As Wash basin.
    Product reference: S8920 1¼" Bottle trap,, multi-purpose outlet.
  - Size: 75 mm seal.
  - Material: plastics, white.
  - Depth of seal (minimum): 75 mm.
- Accessories: S9112 panel mounted toggle bolts and clips for Contour basins.

page 29 NA-SP-N13 – revision 05 **A52701640 – Excerpt - NBS Specification - Sanitary Appliance and Fittings Rev. 05 Bundle 43, Volume 5, Page 809** – BM approved tender issue

Following the instruction to proceed with the change to the Horne Tap, the N13 specification was updated, and BM provided the product datasheets for the sanitary assemblies; document **A52701570 – Taps Product Data Sheet - Bundle 43, Volume 5, Page 216** was the datasheet for the clinical WHB WHB1000, and excerpts from our N13 specification was marked-up by the BM Package Lead. This was submitted to the NHS and approved on or around 08/11/2012.

The ADB codes and descriptions for WHBN1000 in our database were not updated to reflect this instruction; I believe the cost of updating the entire 1:50 FF&E package would have been prohibitive, and we only addressed the key documents.

Refer to my response to **H Water and taps**; question 60 a) to e) for further details on the history of the change to Horne Taps.

6.8 Procurement Packages/Costing

Tender Event Schedule

During Stage 3 we prepared design intent packages for procurement which were based on the BM Tender Event Schedule (TES) requirements; the packages, process and programme dates can be seen on the example TES Stage 3 Adults & Childrens Hospitals Tender Event Schedule Week 176 **(A52701555 – Stage 3 Adults & Children's Hospitals Tender Event Schedule Bundle 43, Volume 5, Page 99)**.

The drawings/documents which formed each package had to go through an agreed process to ensure that the design aligned with the Cost Plan; that the scope of the package aligned with how BM wanted to 'procure' the package; and that our tender package documents had been reviewed by the BM design/package managers prior to issue for Tender.

The drawing package sequence was as follows;

- **T1** – Issue for Cost Check/Tender Documents. This generally consisted of the Stage 2 Design and included a Package Launch meeting.
- **T2** – Issue for Tender Documents. The design was further developed to produce a set of Package Tender Documents. For packages which sat within the contract obligations for Reviewable Design Data, this included presentations of the design development to the GGHB project team (refer to Chapter 6.5 Reviewable Design Data for a summary of RDD presentations).
- **T3** – Issue for Final Design Intent/Tender Documents. Once the final design intent was agreed with GGHB and BM, we prepared a final set of Package Documents. These were then incorporated into the tender documentation by BM prior to the appointment of their subcontractors.
- From T3, the successful subcontractor tenderer was contractually responsible for completing the design in accordance with the tender documentation. Product samples were required to be submitted for review under the RDD process. Thereafter, the Subcontractors would develop their design proposals, and produce detailed fabrication and construction drawing packages as required by their contract with BM.

The document and information control necessary to ensure the co-ordination of the design information throughout all these phases of development was

managed by BM using their Aconex procedures. We would attend package review meetings when requested by BM, and review the subcontractor's proposals, principally to ensure these were co-ordinated, including the integration of interfaces with other packages.

Package Co-ordination Schedule

As part of my role, I developed a Package Co-ordination Schedule, which was regularly updated to report our progress during the monthly design team meetings. This was also used to explain to BM who was responsible for each package from our team, i.e. our Package Lead; in addition, which members of the wider Design Team were part of the overall Design Work Group and should be consulted and copied into correspondences in relation to that package. I have included an example version of the Package Co-ordination Schedule from August 2012 **A52701558 - NSGH Design Work Group & Package Co-ordination Schedule - Bundle 43, Volume 5, Page 124** to demonstrate how we managed the process.

6.9 Construction Packages

Assigning Status to Drawings

As noted in earlier chapters, BM used a system called Aconex to manage the documents and for information control of the Project. BM produced an "Aconex User Manual" **(A52700949 - NSGH - ACONEX User Manual - Documents and Information Control Procedures - undated – Bundle 43, Volume 4, Page 297)** which provided the protocols for reviewing and commenting on sub-contractor's proposals at T3. BM was the Lead Contractor, responsible for co-ordinating all other contractors and consultants and managing the overall Aconex system.

Aconex required a status to be allocated against each document, namely:

Status A = No Comment

Status B = Proceed Subject to Comments

Status C = Resubmit with Amendments

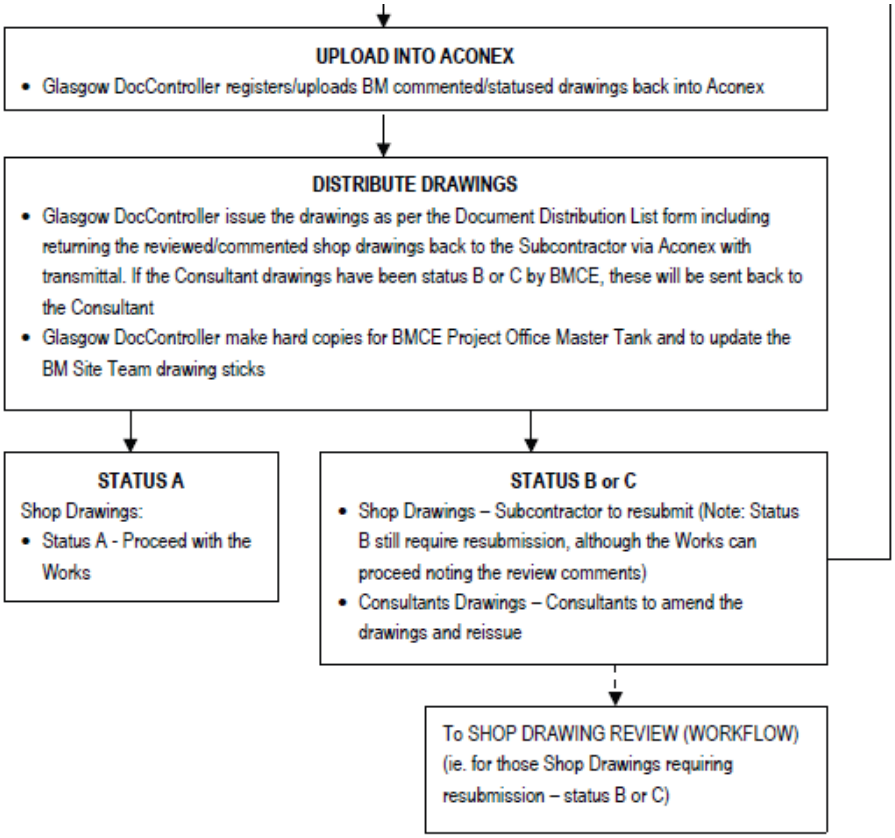
Status D = Rejected (NHS use only)

All drawings prepared for construction had to be processed through Aconex. BM had to decide which consultant was to comment on the drawing it

received from the sub-contractor and then the drawing would be allocated to the relevant consultant on an Aconex Workflow to add its own comment before being returned to BM.

The Package Co-ordination Schedule assisted BM to understand who from our team should be allocated the drawings for review, and who should be part of the distribution for information only.

The process for assigning a status to drawings is as set out on page 64 of the Aconex User Manual **(A52700949 - NSGH - ACONEX User Manual - Documents and Information Control Procedures - undated – Bundle 43, Volume 4, Page 316)**



Construction Co-ordination Summary

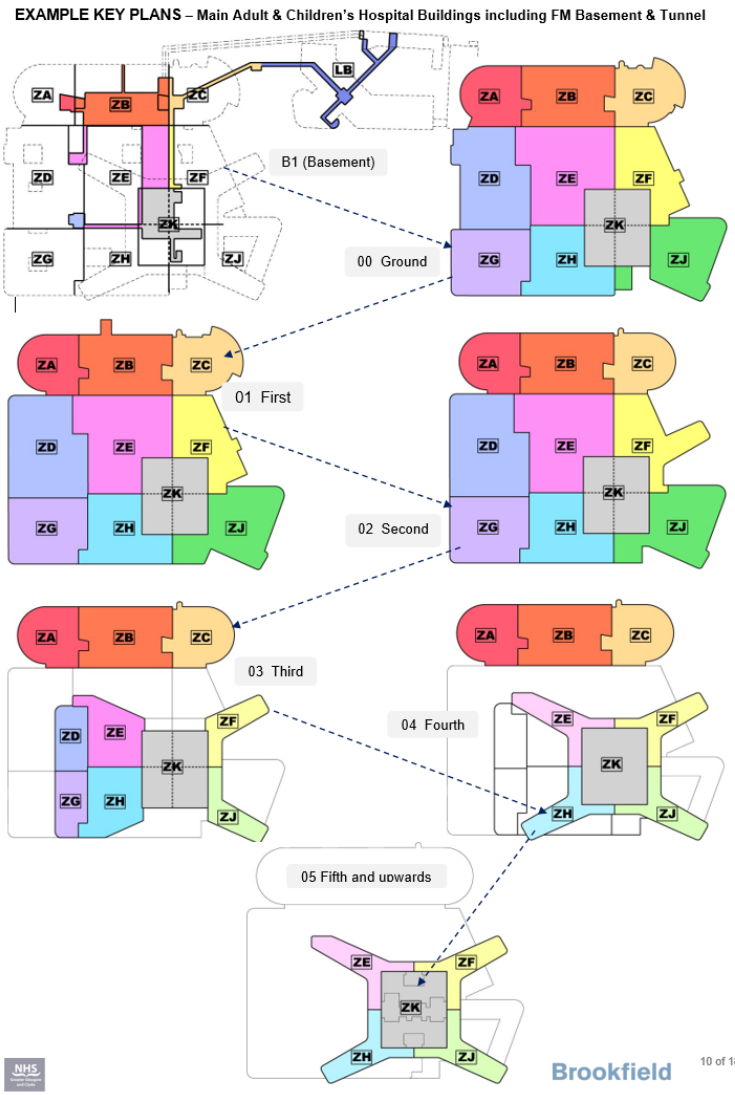
As demonstrated within my abbreviated summary in **Chapter 6.6 - 1:50 Reflected Ceiling Plans** the scale and complexity of the project, combined with a challenging construction programme, resulted in many overlapping design, tender and construction processes.

Fortnightly intensive structural co-ordination workshops commenced at the beginning of 2011, where the principles for the buildersworks through the structural slabs were agreed. This process was managed by our site lead architect, Liane Edwards, who set up the co-ordination process, which also

demonstrates the impact of change after a certain date (refer to **A52701623 – Combined Slab Programme - Bundle 43, Volume 5, Page 723).**

Our internal fit out 1:50 packages were set up to align with both the departmental boundary zones and the structural construction zones. The sequence of production issue dates was reviewed and agreed with BM,

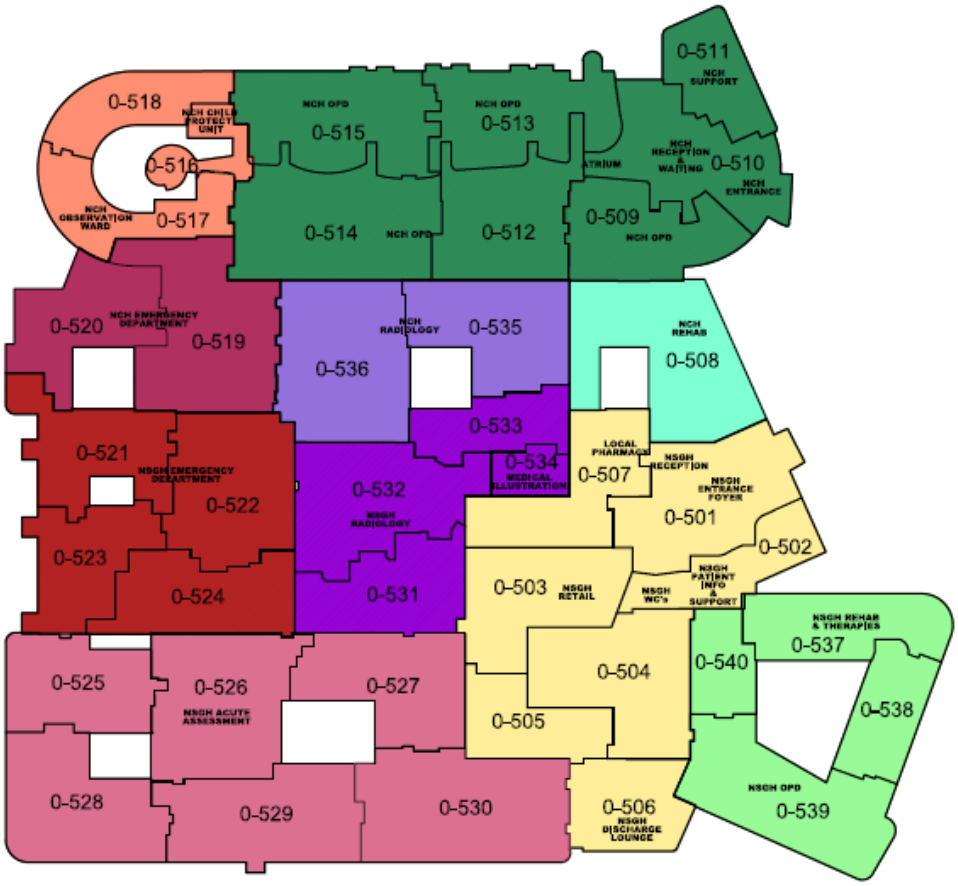
The key construction activities and sequence within each zone/department of the building can be seen in the BM Construction Fit Out Schedules, which were exported from the overall Construction Programme (Stage 3 Adult & Childrens Fitting Out Schedule of dates Podium Levels -1 to 4 BM-GS3-OT01-0231 (**A52701619 – Stage 3 Adults & Children's Hospitals Program - Fitting out, Schedule of dates and Podium Levels - Bundle 43, Volume 5, Page 716)** and **A52701625 – Stage 3 Adults & Children's Hospitals Programme - Schedule of Dates - Tower Level 4 - Bundle 43, Volume 5, Page 727**.



Structural Zone Diagrams from **A52701627 – NSGH Drawing and Document Numbering System by Nightingale Rev. 04 - Bundle 43, Volume 5, Page 729**.

By reference to these schedules, it can be seen that for the first areas, which were initially located on the ground floor Adult Hospital Emergency Department/Acute Assessment (**sheet 0-528**) that the fit-out was planned to commence on week 129; 05/06/2012 with the partition head track installation, and this area was planned to complete on 19/07/2013 with 'final independent inspections and sign-off'.

And that the latest areas, within the adult ward tower (**sheet 11-502/503**) were not planned to commence until 14/11/2013 (after the completion of the first area) and were planned to complete on 30/09/2014.



1:50 Sheet Key Plan – Ground Floor (**A52701624 – 1:50 Sheet Key Plan - Ground Floor Rev. 01 - Bundle 43, Volume 5, Page 726**).

Construction Co-ordination Updates

Co-ordination continued, with a further series of M&E and Structural Co-ordination Workshops which ran from 06/03/2012 – 22/08/2012.

I have provided example mark-up drawings from the Scheihallion Ward, which was part of the Production Group 10 coordination meetings, held on or around 10/07/2012, to demonstrate the workshop review process. There are two 1:50 sheets marked-up with our co-ordination review comments **A52701632 – Second Floor Plan, NCH Schiehallion Ward (Haemato-oncology), Day Case & TCT Fixtures and Fittings Rev. A - Sum/OT - Bundle 43, Volume 5, Page 749** and **A52701630 – Second Floor Plan, NCH Schiehallion Ward (Haemato-oncology), Day Case & TCT Fixtures and Fittings Rev. A - NA Comment - Bundle 43, Volume 5, Page 748** and the same sheets marked-up with the M&E co-ordination review comments from ZBP/Mercury **A52701633 – Second Floor Plan, NCH Schiehallion Ward (Haemato-oncology), Day Case & TCT Fixtures and Fittings Rev. A - Bundle 43, Volume 5, Page 781** and **A52701629 – Second Floor Plan, NCH Schiehallion Ward (Haemato-oncology), Day Case & TCT Fixtures and Fittings Rev. A ZBP Comments - Bundle 43, Volume 5, Page 747**.

Final Construction Co-ordination Process

Following the NHS RDD 1:50 sign-offs in 2012 coordination of the technical design continued, addressing the developing detailed construction packages, adding additional layers of information onto the drawings, and addressing interfaces with other packages. A final 'Sweep-Up' process was developed, producing a final updated construction issue, which was then re-submitted to the NHS for re-approval. Refer to **A52701621 – Sweep Up Program Rev. D - Bundle 43, Volume 5, Page 721.**

Each 1:50 FF&E plan went through a series of final checking, with a full set of mark-ups produced following a further round of coordination workshops which ran from 18/10/2012 – 11/04/2013. Each drawing went through a **400 series final checklist** which included the following;

- Building Control
- Fire
- Doors
- Glazed Screens
- Art
- Desks
- Movement Joints

- Setting-Out
- Sanitaryware
- CDS (Catering Equipment)
- Windows
- Atrium
- Equipment
- Wall Protection
- Recess (Slab)

This also included a final review of any outstanding NHS comments, instructions and construction comments raised by the BM site team. I have provided an example marked-up drawing **(A52701628 – Ground Floor Plan, NSGH Acute Assessment Unit (AAU), Fixtures and Fittings Rev. A - Bundle 43, Volume 5, Page 746**) from the first sweep up meeting held on 18/10/2012 to demonstrate the workshop review process and overall time period. The re-issue of the example drawing as 'revision B' took place on 14/12/2012, and this was approved as status A by GGC NHS on or around 03/01/2013. This was the final construction issue of the drawing, prior to the preparation of the as built/record drawing.

Exemplar Rooms

A number of 'Exemplar Rooms' were built in advance of the full department fit-outs. These included the following rooms;

Theatre Suite; Renal Dialysis station and renal media panel; Single bedroom with ensuite; Treatment Room; Consult/Exam Room; Staff Base and Reception

We produced a set of specific drawings to assist with the accelerated construction of these rooms, and BM used these rooms to present and agree the construction quality with the GGC NHS team.

6.10 Handover and Site Inspections

I was not involved in setting-up this process, therefore I am relying on what I have managed to locate in correspondences on Aconex and our own project records. Early Warning Notices (EWNs) were raised by NA-IBI on 11/12/2012 and 28/03/2013 with respect to the agreement of the 'As Built Process'; it was discussed at the monthly design team meetings, with the BM construction

programme indicating this would start at the beginning of 2013 without an agreement on the process.

Thereafter, meetings to review the scope of our work in relation to site inspections and the process of updated 'As Built' internal fit-out packages appear to have commenced on or around 05th June, 2013.

Following this meeting, BM shared their draft Inspection Process, which was rationalized into a template As-Built Programme for the first inspection area.

IBI Nightingale

Status to Date : 10 June 2013

Production Goup	SHEET FILE	No. of Rooms		TRANSMITTAL	Date Received	BM issue markups and IDMS 400 / 332 series	NA inspect (week ending)	NA issue markups BM + capita	CAPITA inspect / return to BM - NA	MER ISSUE AS BUILT RCP CAD FILE TO NA	NA issue as- built information
	NSGH Critical Care L1										
1	ZG Critical Care 1-527	27	53	BMCE-GC-035929	14.05.13	03/05/13	31/05/2013	07/06/2013	28/06/2013	05/07/2013	19/07/2013
1	ZG Critical Care 1-525	26		BMCE-GC-036330	24.05.13	18/04/13	31/05/2013	07/06/2013	28/06/2013	05/07/2013	19/07/2013
1	ZG Critical Care 1-528	45	77	BMCE-GC-036460	30.05.13	24/04/13	14/06/2013	21/06/2013	12/07/2013	11/07/2013	02/03/2013
1	ZG Critical Care 1-526	32		BMCE-GC-036513	31.05.13	26/04/13	14/06/2013	21/06/2013	12/07/2013	11/07/2013	02/03/2013
1	ZD Critical Care 1-523	40	100			13/05/13					
1	ZD Critical Care 1-524	60				20/05/13					
	NSGH Coronary Care Unit (CCU) L1										
1	ZD CCU 1-522	26	130			20/05/13					
1	ZD CCU 1-521	44				23/05/13					
	NSGH Theatres L2										
2	ZG Theatres 2-526	31				30/05/13					
2	ZG Theatres 2-524	30				04/06/13					

As-Built Programming_10 06 13 Ie **(A52701648 – As Built Programming Bundle 43, Volume 5, Page 875**)

Essentially, BM's site managers were to prepare and issue a draft package of our current drawings for each department sheet area, highlighting and marking up any changes they made on site. Our respective package leads would then attend site to inspect the area, complete our mark-ups on the drawings and issue the set of site inspection mark-ups back to BM. It appears that the original intention was for our site visit to take place prior to Capita's formal 'NEC Project Supervisor' inspection process; with their inspection packs, and the Mercury M&E 'as built' CAD files being returned to us to enable the completion of the updates to our agreed 'as built' drawing package.

A later meeting took place on 16th October, 2013 which appears to be a follow-up review of the programme for the initial early areas, and the process was refined and simplified, I believe due to areas not being ready for the

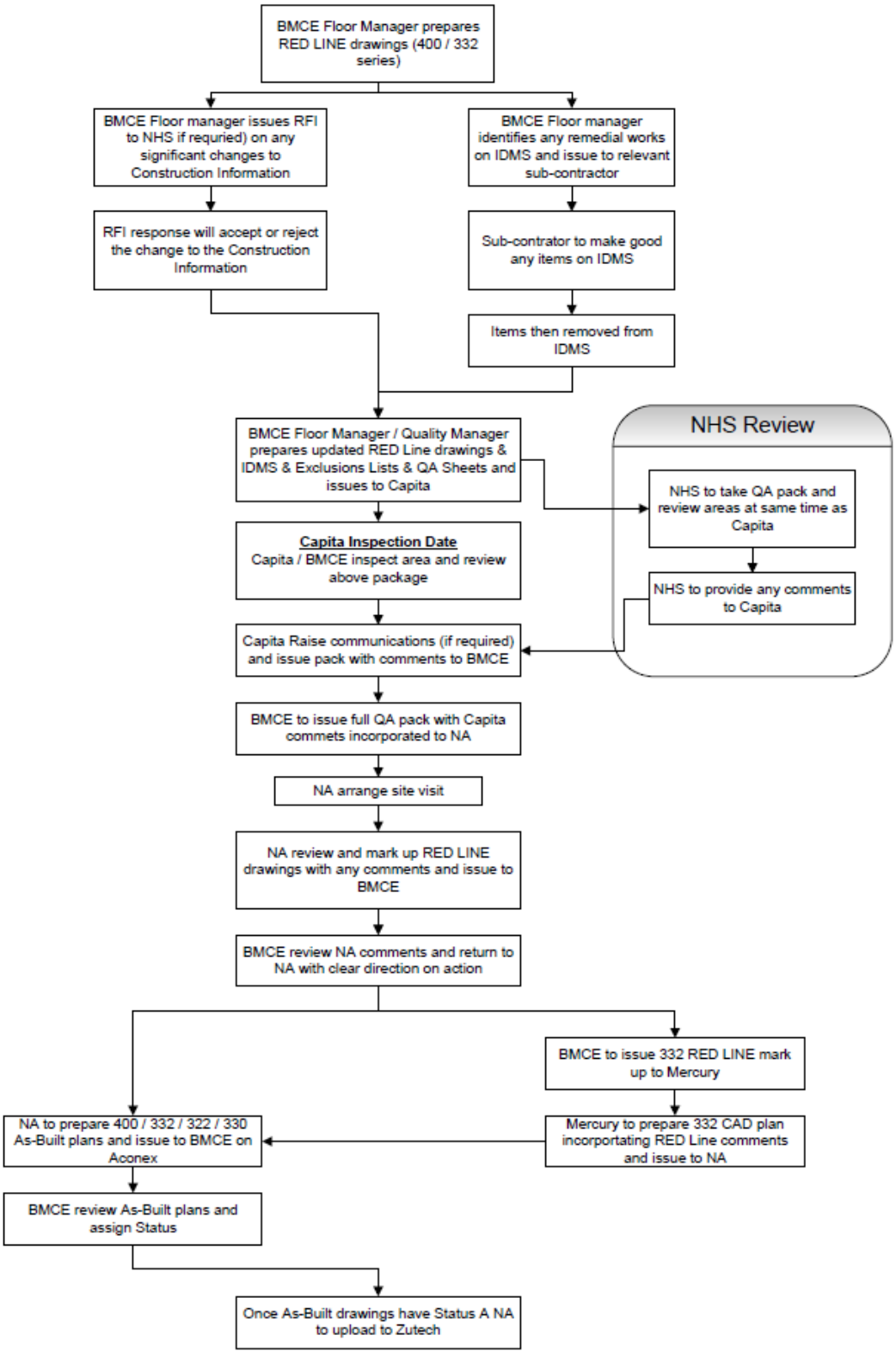
inspection dates requested by BM. At this point we were asked to attend site after the Capita inspection date.

A later programme issued on Aconex under NA-GC-013049 As-Built Drawing Production Programme **(A52701643 – Aconox - As Built Drawing Production Programme Bundle 43, Volume 5, Page 866)** demonstrated the progress and status of completion as of 1st September. 2014.

We appear to have visited the first department areas around 14/05/2013; however, the full drawing production process occurred much later, with the first revision ‘Z1’ drawing package being issued on 28/05/2014.

The as built drawing package would be issued with a ‘Z1’ revision on Aconex, initially for BM to review and approve. The drawings were then stamped and returned following BM review, and were then uploaded onto Zutec, which was the online/cloud-based building management platform BM proposed to house the final O&M manuals, drawings, documents and CAD files required as part of Handover.

Thereafter, the production of the as built drawing packages continued with the later zones until 2015. The 1:50 drawing packages were completed around February 2015, with the RDS and Room Elevations completing around May 2015, which was also the same time as the issue of a final set of CAD files.



As-Built Flow Chart 17 10 13 **(A52701647 – As Built Flow Chart Bundle 43, Volume 5, Page 874)**

In terms of the commissioning, we had no involvement in this process, therefore I can only locate limited information. I can see that we were provided with regular updated programmes for commissioning.

Commissioning Programme Update - Week 257 was issued through Aconex on mail number BMCE-GC-048457 **A52701576 – Aconex Commissioning Programme Update - Week 257 - Bundle 43, Volume 5, Page 351** on 12th December, 2014. This was presumably the last update as the project was handed over in January 2015. The 4 programmes demonstrate the commissioning which was completed by BM prior to handover.

- **A52701582 – Stage 3 Adult & Children's Hospitals - Global Commissioning Program - Bundle 43, Volume 5, Page 408.**
- **A52701401 – Stage 3 Adult & Children's Hospital - Plantroom 41 Commissioning Programme Bundle 43, Volume 5, Page 948**
- **A52701580 – Plantrooms 32 and 33 Towers Commissioning Program - Bundle 43, Volume 5, Page 393**
- **A52701405 – First Floor Plan, NSGH Critical Care Rev. 06 Bundle 43, Volume 5, Page 956**

I was also able to locate a Construction Progress Report, which included an example of the Capita Symonds NEC3 Project Supervisors Report.

- Example Construction Progress Report (BM)
- **A52701642 – Construction Progress Report Stage 3 Bundle 43, Volume 5, Page 851**
- Example NEC3 Project Supervisors Report (Capita Symonds)
- **A52701649 – Capita Symonds - NEC 3 Supervisors Report No. 23 Bundle 43, Volume 5, Page 876**
- Example Hospital Construction Progress Meeting Minutes
- **A52701646 – Hospital Construction Progress Action Notes No. 22. Draft Bundle 43, Volume 5, Page 868**

Answers to Questionnaire

I now turn to address the remaining questions contained in the Inquiry's Questionnaire which was sent to me by the Inquiry on 3rd February 2025.

For ease of reference I am following the format and sequence of the questions in relation to the works information.

Review of the 'Works Information'

6. What information was provided to IBI to assist with the planning and costing of the project to enable Multiplex to prepare the Contractor's Proposals?

A. ITPD Documents, including a limited number of exemplar 1:200 departments, clinical output specifications, Schedule of Accommodation (SoA) and a full set of Employers Requirements. Please also refer to A.2 Project Bid Stage of my statement for a more detailed summary.

7. The Inquiry understands that NHS GGC provided a list of guidance documents (e.g. SHTM/SHPN) that the design had to comply with, please confirm which elements of the design contained in the Contractor's Proposals, did not comply with guidance, and why and how any non-compliances were highlighted during the tender process and ITPD process?

A. Any elements of the design that were contained within the Contractor's proposals that were a variance to guidance ought to have been captured within the Logs.

Clarifications and RFIs were raised during the ITPD/Competitive Dialogue process. The responses and agreements to these were included in the Contract Bible within Folder B Logs, which included the BIW Log, RFI Log, and various Clarifications logs. In addition, Folder I Volume 7 SHTM; Folder J Volume 8 ADB contained the Contractual agreement on compliance and non-compliance of the Guidance Documents. It is my understanding that the design response prepared within the Contractor's Proposals was to comply with the list of Guidance Documents, and the Logs were addressing

predominantly contradictory requirements, discrepancies and queries over how the design was achieving or intending to achieve compliance. It should be noted at this stage it was far from a complete design

8. What consideration was given to the impact of any non-compliances on patient safety/infection prevent? At what point, if any, was advice sought from Infection Prevention and Control Staff? If advice was sought, from whom was it sought and what was the advice given?

A. The NHS had an IPC representative, Jackie Stewart, as part of their Core Project Team. She was in attendance at all the UGMs and would liaise internally with the wider GGC team. She was seconded to the project from the outset, so I had no cause for concern from a design perspective, as we received her advice throughout the design process. Neither I nor anyone from the IBI team had involvement with the internal GGC IPC meetings, however I understood if any issues occurred, that the NHS GGC Project Team would review advice provided from their wider IPC team. During the design and construction stage I have located examples where advice was requested on infection control construction detail issues, or design conflicts and direction was requested from the NHS and their Technical Advisers (Currie & Brown). Examples provided: 2010-03-22 - Macleod, Mairi - Jonathan Hendrick, Scott McCallum, McCluskey, Fiona, Emma White - Day Medical Unit; **A52701399 – Email from Mairi Macleod to Emma White and Ors. - Day Medical Unit - Bundle 43, Volume 5, Page 503; A52701587 – Aconex - Re: Art Strategy update - Bundle 43, Volume 5, Page 504; A52701589 – Aconex - NSGH: IPS panels - Bundle 43, Volume 5, Page 512; A52701583 – Aconex - NSGH Sensor Taps - Bundle 43, Volume 5, Page 443.**

9. Did IBI propose any changes to the exemplar/reference design? If so, please provide details of changes and why?

A. NA-IBI and the Multiplex Design Team completed a full review of the exemplar design and discussed clinical issues and improvements which could be made during the Design Dialogue Meetings (DDM). The 'changes' proposed were identified opportunities which were presented through our structured approach to the Competitive Dialogue process. The second DDM presentation (DDM_02_NA_Presentation_200509) **(A52701456 - Bidder B New South Glasgow Hospitals Design Dialogue Meeting 2 - undated – Bundle 43, Volume 4, Page 774)** captures the essence of the opportunities identified, which were developed in the design options presented and captured within the final design proposal within the Contractor's proposals. The final Post Submission Presentation was a demonstration of the intent to comply with the Client Brief, albeit with an alternative approach to the exemplar design. The full set of Design presentations have been included. Please also refer to A.2 Project Bid Stage of my statement for a more detailed summary of the design evolution from the exemplar design to the proposed design

10. The Inquiry is aware of the agreed ventilation derogation recorded in the M&E Clarification Log. **(Please refer to Bundle 16, Document No. 23, Page 1662)**

a) Describe IBI's role in respect of the proposals leading to the ventilation derogation.

A. I do not recollect NA-IBI having any specific role in preparing the proposal for the ventilation clarification/derogation recorded. At the time NA-IBI were proceeding on the basis of the façade design within the bid which still contained the provision of openable windows as part of the hybrid ventilation strategy.

I do remember members of the design team being requested to review the various clarifications and logs against their respective disciplines, and I reviewed architectural clarifications and RFIs.

I was aware of some ventilation design challenges with achieving all the Client Brief requirements, and that ZBP had built a thermal model to test the ward tower design during the bid stage. I believe that this ultimately resulted in the agreement of the ventilation clarification/derogation recorded in the M&E Clarification Log.

b) What was the reason for the ventilation derogation?

A. My understanding from re-reading the clarifications and associated documents was the thermal modelling completed by ZBP during the bid design stage demonstrated that the ward tower would overheat with natural ventilation. ZBP then modelled the mechanical ventilation options with 6 air changes per hour (ac/h) and this improved the thermal performance, but the summertime 26degC upper temperature requirement could not be achieved. The GGC Client requirement exceeded the SHTM standard, and I remember this being a critical issue for GGC, as a result of some of their existing healthcare estate having major overheating issues. ZBP's thermal modelling did demonstrate that the SHTM standard of 50 hours exceedance above 28degC could have been achieved, with 6 ac/h. ZBP were asked to develop further options, as GGC were keen to maintain the lower summertime of 26degC. ZBP's modelling outputs to increase the mechanical ventilation were found to create an unsatisfactory internal environment for the patients. The final solution ZBP proposed was to lower the ac/h to 2.5 but maintain the supply air volumes to ensure sufficient fresh air combined with the incorporation of active chilled beams, and to provide negative pressure. The justification being a natural ventilation option was reliant on the window being opened, and subject to external conditions, that 6ac/h would have rarely been achieved. I believe GGC's Technical Advisory team were comfortable with the logic of the proposal because it was supported with thermal calculations. Whilst this is my understanding of the reason for the clarification/derogation I do not have the technical engineering expertise to provide a fully informed opinion of ZBP's strategy.

c) Who drafted the M&E Clarification Log and who was responsible for updating the log? Following updates to the log, please provide details of who the log would have been distributed to.

A. My understanding was that the M&E Clarification Log was managed by the Client and BM. BM requested reviews of all the Clarification Logs from the Design Team prior to the agreement at each Contract Stage. Updates to the Logs were distributed to the Project Director for each respective discipline by Multiplex. Neil Murphy received the two Contract versions of the M&E Clarification Logs within the Project Bibles. These were copied onto our project server, and we shared the links to the Project Bible logs within our internal project team for their reference purposes, and to check against as the design was developed in Stage 2 and Stage 3. Refer to letter 20100326murphy from Brookfield Ross Ballingall **(A52700961 – Letter from Tom Steele to Ross Ballingal - Queen Elizabeth University Hospital - Post Contract Review - 29 March 2019 – Bundle 43, Volume 4, Page 359); A52701561 – Appendix 2 & 3 of the 2010 Instruction to Proceed letter Bundle 43, Volume 5, Page 135; A52701443 – NSGH 2010 Instruction To Proceed Bible – Index Bundle 43, Volume 5, Page 49.**

d) What was the scope of the agreed ventilation derogation recorded in the M&E Clarification Log? In particular, was it restricted to general wards only? If so, (a) how is this interpretation evidenced within the documentation; and (b) where is the specification located for areas that required specialist ventilation and isolation rooms?

A. My understanding was that at the time of the original agreed derogation in 2009 this design approach was to the inpatient wards, and not to areas requiring specialist ventilation and isolation rooms. The thermal modelling had been focused on the wards and key departments required for the tender submission. There was no environmental matrix at this stage. The updated FBC M&E Clarification Log in 2010 [The M&E Clarification Log (2010 ItP) - (FINAL) **A52701586 – M&E Clarification Log 2010 - Bundle 43, Volume 5, Page 431** maintains the same derogation, however the design was further developed and submitted by ZBP and Mercury as part of their M&E design deliverables. The environmental matrix EDS ItP Batch 1 - ZBP updates_141210 **(A52701413 – This will not be Bundled)**; **(A52700734 – Bundle 43, Volume 6, Page 1131)** and EDS ItP Batch 2 - ZBP updates_141210 **(A52701414 – This will not be Bundled)** within the FBC Project Bible indicates the design specification of Isolation Rooms within the

Mechanical Ventilation Notes as ‘See Table 1 of HBN 04-01 Supplement 1 for guide to air volumes and pressure differentials.’ This document also contains various other inpatient room types, some of which have different ventilation data. Beyond that the detailed specifications would be contained within the M&E design package produced by ZBP and Mercury.

e) At the time, what concerns, if any, did you have regarding the derogation?

A. I am not an engineer and had not considered this to be a concern at the time, as ZBP our mechanical engineers were experienced healthcare engineers, they had the relevant expertise, and the proposal was reviewed and agreed with the GGC client and their Technical Advisory team, who also had the expertise to assess the derogation.

f) Did you raise any concerns, if so with whom?

A. I had no concerns, as noted above.

11. Refer to the ZBP Ventilation Strategy Paper dated on or around 15 December 2009? **(Please refer to Bundle 16, Document No. 21, Page 1657)**

a) What was your involvement in this document being instructed?

A. I had no direct involvement with this document. IBI provided the CAD files/building models to ZBP to allow them to prepare their thermal modelling which informed the proposed Ventilation Strategy. The Contract instructions and discussions were held between GGC and BM and did not include NA-IBI.

b) What was the intended purpose of this document?

A. I was not involved in the development of this document; I believe the purpose of the document was to be a high-level technical summary of the proposed Ward Ventilation Design Strategy, to support the ventilation derogation contained in the BIW Contract log.

c) When did you first have sight of this document?

A. I do have a recollection of seeing this document, but I cannot locate a copy of this document in the 2009 Contract Bible we have on records, or within our internal correspondence records.

d) Who was the document shared with?

A. It was not a document created by NA-IBI therefore I do not know who this was shared with.

e) What concerns if any did you have on reading this document? If so, did you escalate these concerns and to whom?

A. I had no concerns with the overall Ventilation Design Strategy; it is not unusual to have fully sealed healthcare buildings. There were noted safety issues with openable windows under the helipad, and all openable windows in hospitals require 100mm restrictors for patient safety reasons. Given the outputs from the thermal model indicating the ward tower would overheat ZBP proposed this ventilation strategy, including active chilled beams. I had no reason nor the technical engineering expertise to question ZBP's strategy.

12. Are you aware of any risk assessments, whether in compliance with the standards in HAI Scribe or otherwise, that NHS GGC carried out in respect of the change in the ventilation strategy that appears to follow the ZBP Ventilation Strategy Paper dated 15 December 2009? **(Please refer to Bundle 16, Document No. 21, Page 1657)**

A. I am not aware if any further risk assessments were completed.

13. Describe the advice sought, if any, or involvement, if any, of the GGC Infection Prevention and Control staff in respect of the change in the ventilation strategy that appears to follow the ZBP Ventilation Strategy Paper dated 15 December 2009.

A. I am not aware if any advice was sought, or if there was any involvement of the GGC IPC staff on this Ventilation Strategy at the time it was agreed.

14. Who from the GGC Project Team and the NHS GGC Board were aware of the ventilation derogation?

A. At the time the ventilation clarification/derogation was reviewed, I would have expected Alan Seabourne (NSGH Project Director) and Peter Moir (NSGH Project Manager) from the GGC NHS Project Team to be aware. They would have been reliant on their technical advisory team to assess the ventilation proposal from a technical perspective. Within the ITPD Volume Three Bid Deliverables and Evaluation Document **(A52701415 - NSGH - Invitation to Participate in Competitive Dialogue - Volume 3 - Bid Deliverables and Evaluation - undated – Bundle 43, Volume 4, Page 361)** [NSGACL_-_ITPD_Vol3_-_Contractor_Issue_Rev_1_iss1_rev1[1]] on page 32 TABLE 1 - BOARD EVALUATION GROUPS **(A52701415 - NSGH - Invitation to Participate in Competitive Dialogue - Volume 3 - Bid Deliverables and Evaluation - undated – Bundle 43, Volume 4, Page 392)** there is a list of names of who was part of the Technical Evaluation Group.

TABLE 1 - BOARD EVALUATION GROUPS
a) Technical Evaluation Groups

GROUP	DESIGN	LOGISTICS	LABS	COMMERCIAL
BOARD	Alan Seabourne Alex McIntyre Annette Rankin Fiona McCluskey Frances Wrath Heather Griffin Hugh McDerment Mairi Macleod Mark McAllister Mary Ann Kane Morgan Jamieson Peter Moir Stephen Gallacher	Alan Seabourne Alex McIntyre Frances Wrath John Green Peter Moir	Alan McCubbin Alan Seabourne Alex McIntyre Annette Rankin Frances Wrath Hugh McDerment Jim Crombie (Lead) Isabel Ferguson Mary Ann Kane Peter Moir Dr Margaret Burgoyne Dr Rachel Green	Alan McCubbin Alan Seabourne Alex McIntyre Peter Gallagher Peter Moir
TA ADVISORS	David Hall (Lead) Graham Annandale Harry Smith Iain Buchan John Bushfield Mark Baird Robert Menzies Susan Logan	David Hall (Lead) Mark Baird	Douglas Ross Graham Annandale Neil Robson Raj Deb Stewart McKechnie	Douglas Ross (Lead) Jim Hackett Juliet Haldane Michael McVeigh Simon Fraser

I cannot comment on how the communication was processed within the wider GGC Project Team, or the NHS GGC Board.

15. How was the ventilation derogation communicated to the wider Project Team?

A. I was aware of the agreed ventilation derogation recorded in the M&E Clarification Log as I had read the final contract documentation early in 2010. Within the NA-IBI team a number of our leads were aware from being asked to read the Contract Bible by Neil Murphy, our Project Director. I cannot comment on how the communication was processed within other organisations, or the wider GGC Project Team.

16. What impact did the requirement for a BREEAM excellent rating have on IBI's proposed design in particular in respect of ventilation?

A. I was not directly involved with the submittal of our proposed design to WSP, who were the appointed BREEAM and Sustainability Consultant for the Multiplex team. From reviewing the documentation in our records, I have provided the following summary. The project was categorized within BREEAM Healthcare 2008 as a Specialist Acute Hospital, In-patient - High concentration of energy intensive engineering services &specialist equipment. It is a standard requirement to achieve BREEAM Excellent in Healthcare projects. During the design stage each consultant reviewed their design with the BREEAM Assessor to agree which credits should be targeted. Under Health & Wellbeing, the following architectural credits were identified as not being targeted;

- Hea 1 – Daylighting – due to non-compliance on some areas of the design this credit was not targeted.
- Hea 2 – View Out - due to non-compliance on some areas of the design this credit was not targeted.
- Hea 7 – Potential for Natural Ventilation – due to the agreed Ventilation Strategy this credit could not be achieved, therefore was not targeted.
- Hea 8 – Indoor Air Quality – the targeted credit was not achieved due to the fresh air rates in the offices designed to be 10 l/s rather than 12 l/s.
- Hea 10 – Thermal comfort – credit achieved. The Energy Strategy (ref. 1) confirms that IES Virtual Environment dynamic thermal simulation model has been undertaken. The modelling results indicate that internal summer temperatures will not exceed 28degrees C dry bulb for more than 50 hours

per year (in accordance with HTM 03-01 and CIBSE Guide A). This is achieved in all areas and therefore compliance has been met.

- Hea 11 – Thermal Zoning. Ene 1 - Reduction of C02 Emissions - Up to fifteen credits where evidence provided demonstrates an improvement in the energy efficiency of the building's fabric and services and therefore achieves lower building operational related CO2 emissions. The Energy Strategy confirms that IES Virtual Environment dynamic thermal simulation model has been undertaken. ZBP have confirmed that they are accredited Energy Assessors. A design stage EPC rating has been provided for the building, confirming an EPC score of 40, equating to 6 credits. The accredited assessor is Tom Davis of ZBP, accreditation number LCEA100413.6 credits achieved. In summary, the BREEAM credit for Natural Ventilation was not targeted, a relatively modest 6 out of 15 possible credits were achieved for the reduction of C02 emissions which was directly linked to the ZBP Thermal Model.
- In summary, the main impact on IBI's design was the increased thermal performance requirements for the façade, which would have influenced the decision on the type of insulation. The decision to seal the building was also influenced by the thermal model and ventilation strategy, which was led by ZBP; the impact was again on our façade design package. (Refer to **A52701585 – Design Stage Certification Report BREEAM Healthcare 2008 v4.0 - Bundle 43, Volume 5, Page 445** for full details).

17. What impact did the energy usage target of no more than 80kg of CO2 per square metre have on IBI's proposed design?

A. My understanding was the main impact on our proposed design was on the Façade Design; the increased thermal performance requirements led to higher performing insulation products being specified to achieve improved U-Values. This included reviewing the type of glass, shading, the amount of opaque glazed panels. Also, as an action from the Low Carbon meetings, NA-IBI continued to review the layouts to see if there were any non-clinical areas which would benefit from passive ventilation, particularly the atria. The greater impacts were on the M&E proposed design. I believe that this drove some key design decisions, including ensuring carbon filtration was only fitted where required. I believe that it was the Low Carbon Design criteria which impacted the building design more that BREEAM, influencing some of the

key engineering design strategies and decisions in relation to ventilation and the adoption of Chilled Beam Units.

18. The Inquiry is aware that Chilled Beam Units were proposed by Multiplex and accepted for use through the QEUH / RHC. What was the basis for Multiplex proposing to use Chilled Beam Units? Is the use of Chilled Beam Units appropriate throughout hospitals? At the time, what concerns, if any, did you have regarding the use of Chilled Beam Units?

A. I am not an engineer, however I was familiar with the use of chilled beams in hospitals. I remember chilled beams were discussed and adopted by ZBP in the heating and cooling strategy at Peterborough City Hospital, albeit this was a mixed mode ventilation strategy and less reliant on chilled beams. I also researched the use of chilled beams in hospitals further and located a Frenger Systems brochure Active Chilled Beams For Healthcare and Patient Rooms which describes its EcoHealthcare product. In addition, it provided a list of Chilled Beam Projects on page 7, including a number of UK Healthcare Projects; such as Great Ormond Street Hospital, London; Royal London and St Bart's Hospitals, London; Gartnavel General Hospital, Glasgow; Beaston Oncology, Glasgow; New Victoria Hospital, Glasgow. It should be noted that Frenger Systems were not the suppliers of the installed chilled beams.
My understanding was chilled beams were a more sustainable way of cooling rooms, which required less energy than using mechanical ventilation to cool the air. Chilled beams were permitted in HTM 03-01 and noted as increasingly common. There was limited design guidance and restrictions, as noted within the HTM at the time, therefore I had no concerns on the proposal from ZBP to use chilled beam units.

In addition, I located a number of correspondences on Aconex between Mercury, the M&E Subcontractor, and ZBP regarding the selection of chilled beam products. **A52701563 - Mercury RFI - ZBP Response - Bundle 43, Volume 5, Page 164; A52701562 - Aconex ZBP NSGH Chilled Beam Selection Report (2900 Stage /L) - Bundle 43, Volume 5, Page 157; A52701564 – NSGH - Chilled Beam Test Lab Results - Bundle 43, Volume 5, Page 165.**

19. Would it have been possible to achieve the sustainability requirements (BREEAM excellent rating and 80kg of CO2 per square meter) if Chilled Beams were not selected for use in the QEUH/RHC?

A. My understanding is the BREEAM excellent rating could have been achieved without chilled beams, as other credits could have been targeted. However, the Low Carbon target of 80kg of C02, and targeted limitations on the use of mechanical ventilation to cool the building would suggest at the time it would have been extremely challenging to meet 80kg of CO2 without the adoption of chilled beams. I have spoken to a Mechanical Engineer I am currently working with how these targets could have been met in 2009/2010 and he suggested if chilled beams were not selected it would have required a considerable increase in mechanical cooling, which would have increased the size of the plant and ventilation ductwork and therefore not complied with the project's Low Carbon Strategy, which were set out by the wider Scottish Government/NHS energy targets. I also asked him how the sustainability targets are being met now, in relation to the New Hospitals Programmme (NHP) where major healthcare projects have an increased sustainability target of Net Zero Carbon. He confirmed that with the stricter guidance on the use of Chilled Beams in clinical areas within the current HTM 03-01 Guidance the NHP hospitals are being designed with 'all air' systems, combined with air-source heat pumps to cool the air. The impacts are much larger ductwork and plant requirements, increasing the size of the buildings and increasing the floor-to-floor heights to accommodate the ductwork within the ceiling voids.

20. Under ‘Services Systems’ confirmation was required “that the design fully complies with the requirements of the Employers Requirements, M&E appendices 1 to 6, all HTM’s, HBN’s, SHTM’s and current legislation”. The Inquiry is aware of several departures from SHTM 03-01 Guidance in relation to air change rates, pressure differentials and filtration requirements. There was also a variation to the primary extract arrangement for PPVL isolation rooms from that set out in SHPN 04 Supplement 01. Was IBI aware at the time of these non-compliances? If so, please confirm how IBI communicated these non-compliances to the NHS GGC Project Team.

A. IBI were not the designers of the ventilation system, my understanding is this was designed by ZBP, the M&E consultant, and Mercury Engineering, the M&E subcontractor. I was aware of some design clarifications raised associated with the ventilation design for the isolation rooms, however my understanding from reviewing the environmental data schedule inputs supplied by ZBP was that the design of the isolation rooms was to be in compliance with SHPN 04 Supplement 1. I could not comment on any variations to the primary extract arrangements as that is outside my expertise as an architect.

21. Was the ventilation derogation noted in the M&E Clarification Log, recorded in the Full Business Case? Who was responsible for doing this? If you were aware that it had not been recorded in the Full Business Case please explain what action, if any, you took.

A. I was aware of the M&E Clarification Log as this was bound into the original Contract/Project Bible prior to the commencement of Stage 2 of the Contract. IBI had no responsibility for the M&E Clarification Log. The NHS GGC Team were responsible for submitting the relevant documentation for their FBC submission. I was interviewed as part of the NHS Gateway 3 Panel Review and have located the **Information Sheet for Gateway 3** and emails from Mairi Macleod, the NHS Project Manager for the New Children's Hospital. The information shared is listed as follows under item 14. ‘Information Supplied to the Gateway Review Team; Employers Requirements Volume 1; Employers Requirements Volume 3; New South Glasgow Hospital’s Project

Monthly Report; Contract Risk Registers; Project Risk Register; Acute Services Strategy Board Meeting Minutes; Acute Services Strategy Executive Sub-Group Meeting Minutes.' The focus of my interview was the user engagement process, primarily the 1:200 department designs; I was able to demonstrate the design process within the department tracking schedule I developed NA-SH-001_NSGH 1-200 UGM TrackingSchedule&Programme_FBC version_30-09-2010 **A52701547 – New South Glasgow Hospitals 1:200 User Group Meeting Tracking Schedule and Programme Rev 16 (FBC submission) Bundle 43, Volume 5, Page 45.** This interview took the form of a telephone conference call at 1430 on Tuesday 5 October 2010.

Design Role in the QEUH/RHC Project

22. Looking at Volume 10 of the Tender Submission (**A35780880 – Brookfield – Project Execution Plan Bundle 43, Volume 3, page 493)** and in particular the 'Project Management Structure' on Page 5 and explained on Page 7, to what extent is it reasonable to assume from the tender documents that the proposal was that the work of the whole design team (including work on the ventilation system) was to be co-ordinated by and reported to Nightingale Associates as 'Architect and Lead Consultant' and that the intention was that Nightingale would work 'closely with the NSGH team without unnecessary interference from Brookfield'?

A. NA-IBI were contracted to Brookfield/Multiplex (BM), not the NSGH team. No meetings were permitted with the NSGH team without prior agreement with BM, and I cannot recall meetings with the NSGH team without BM attendance, or approval. The only meetings I can recall where BM may not have always been in attendance were the user group meetings, but they gave their prior approval to proceed in their absence. Our role as Architect and Lead Consultant, as it related to ventilation, involved coordination of the M&E design, including ventilation-related components within each room to avoid clashes between MEP components and other equipment in the room. We did work closely and collaboratively with both the NSGH team and Brookfield/Multiplex. The NSGH team had their own Technical Advisor team

providing support. I understand that Currie and Brown performed the Lead Consultant role for the NSGH team.

23. The Inquiry understands that drawings for ward layouts and Room Data Sheets (RDS) were approved through the Reviewable Design Data (RDD) process. Describe your role, if any, in the RDD process and User Groups.

A. My role as Project Lead was to support BM with developing the design programme and design processes for the User Group Meetings (UGMs) and Reviewable Design Data (RDD) process. I acted as the design 'coordinator' during the UGMs and developed the various design protocols. The department leads would report progress and any issues/concerns from the User Group Meetings (UGMs) they attended back to me, and I would report back to BM and the NSGH Project Team. We would review and agree the design status (using a Red/Amber/Green RAG assessment) at the end of each round of UGMs, and I would update the Design Co-ordination/Tracking Schedule [NA-SH-001_NSGH 1-200 UGM TrackingSchedule&Programme **A52701547 – New South Glasgow Hospitals 1:200 User Group Meeting Tracking Schedule and Programme Rev 16 (FBC submission) Bundle 43, Volume 5, Page 45.** The 1:200 department layouts, including the wards, were developed in collaboration with the NSGH team and their user representatives and were reviewed and agreed during 3 rounds of UGMs. 1:50 room type layouts and supporting RDS were then developed to validate the 1:200 design and equipment list/costs. These were reviewed in 2 rounds of UGMs. The design requirements for RDD were agreed within the Appendix K/FBC approved documentation. Thereafter, during Stage 3 the 1:50 fully loaded department layouts were developed using the agreed 1:50 room type layouts and reviewed in a series of 'Pre' UGMs with the NSGH team and BM design team to ensure the designs were co-ordinated and ready for presentation to the users. And a final round of UGMs took place to review the 1:50 fully loaded department layouts. Refer to the 1:200 and 1:50 protocols, coordination schedules and programmes for more details of the process. The final approval of the department layouts, including the wards, took place in Stage 3 under the agreed RDD process. The 1:200 department layout plans were updated to reflect any Appendix K comments, and to co-ordinate with the 1:50 department designs and UGM comments, and were approved on or

around November 2011. The 1:50 room type drawings were updated to include elevations of each wall and re-issued and approved concurrently. The 1:50 fully loaded department layouts were updated to reflect the agreed UGM sign-off comments, including comments on the RDS, primarily in relation to the checking of the equipment schedules. The approval of the RDS took place at a later date, on or around May 2012. Further reviews of the environmental data took place in MEP Technical Workshops which were not attended by NA-IBI. These comments were returned from May 2012 onwards and further exports of the environmental data were supplied by NA-IBI for ZBP to incorporate the environmental review comments. This process continued until around October 2012, the output from NA-IBI was a full set of department RDS to incorporate the updated environmental data supplied by ZBP. The action for both ZBP and Mercury was to update their ventilation drawings to the agreed comments and resubmit their drawings under RDD. These drawings were also reviewed under the RDD process, however NA-IBI did not always receive the final approved versions of other Consultant's drawings.

24. Please confirm how the RDD process worked and the various stages that drawings and RDS went through before proceeding to construction.

A. The BM team were obliged to provide further detail of the items listed under Contract Data as the agreed set of Reviewable Design Data (RDD) Refer to **A52701573 – NSGH Invitation to participate in Competitive Dialogue Volume 2/1 Appendix K – undated - Bundle 43, Volume 5, Page 222.** This included the detailed design development of the packages held within the Appendix K/FBC submission, as well as other items such as samples and Subcontractor proposals. Following the successful collaborative process of 'Pre-UGM' meetings instigated in Stage 2, we agreed a strategy with the GGC Project Team which included a series of collaborative RDD Workshops. I prepared an RDD Workshop Timetable, which was arranged to enable each respective Consultant to present their design to the GGC Project Team, obtain comments, then update and issue for formal review under an RDD Aconex Workflow. [Refer to **A52701597 – RDD Workshop Timetable for 2012 Bundle 43, Volume 5, Page 554;** and **A52701594 – Nightingale Associates - Design Strategy Review Program - Bundle 43, Volume 5,**

Page 551) for the architectural design strategy programme]. The RDD drawing reviews and approvals continued throughout Stage 3 from 2011 to 2014 and were managed by Multiplex on Aconex. The scanned/NHS signed drawings were generally uploaded by Multiplex as a record copy and distributed to the Design Team and GGC, with any comments noted to be addressed before proceeding to construction. I also assisted Multiplex with the set-up of the RDD Tracking Schedule to initially agree all the drawings which were to be submitted through this review process. Thereafter, Multiplex took ownership and used the RDD Schedule to log the history of the drawing approvals. This can be used to track the review and approval history of each drawing and the relevant Aconex Transmittal as required. [Refer to RDD SCHEDULE AS AT 01.05.14 **(A52701430 - NSGH Adults and Children's Hospital - RDD Master Schedule Reviewable Design Data - Issued for Approval - 02 May 2014 – Bundle 43, Volume 4, [Paper Apart]).**
This is the last version I have located on Aconex]. Please refer to the detailed supporting paper I prepared for a full description of the RDS process.

25. How were members selected to be part of a user group?

A. From an NA-IBI perspective, our project delivery strategy, which I developed as part of my Project Lead role, was to provide a department design lead from our UK team who had the most relevant experience for each department. Our lead architects had extensive experience designing healthcare facilities and came from our specialist healthcare teams based in our London, Cardiff, Harwell and Rochdale offices. We provided a lead architect and at least 1 supporting team member for each User Group Meeting. The GGC Project Team produced a User Group Remit document which clarified the Terms of Reference for the User Group, confirming the name of each Group Lead, their responsibilities and the overall process. The aim of the User Groups was clarified as follows;' To provide a forum for agreement/sign off of the 1:200 and 1:50 architectural drawings for the Department. Please note that the architectural drawings will be based on the previously signed off Schedules of Accommodation which are now fixed. Sign-off of the drawings will follow a formal procedure and will be recorded on the "Design Acceptance Procedure" Form. This form will record the

outcome of each meeting and be signed by the User Group Lead on behalf of the Directorates at the end of each meeting.' It should be noted that the Multiplex team, including NA-IBI as their Architect, were not involved in the development and approval of the Client Brief Schedule of Accommodation. '3. Membership - The membership of the group has been approved by the Acute Services Director(s). The Group will have an identified Lead. Members will be responsible for (i) discussing the design with colleagues and in the user meetings (ii) for communicating the priorities and associated work plans agreed by the Group to their colleagues following each meeting'. '4. Group Lead. The Group Lead will be responsible for ensuring that Directorate priorities are reflected in the design. The Group Lead will be responsible for keeping their Director appraised of the status of the design process. Where differing options regarding the design arise the Project Team will take their instruction from the Group Lead'. It should be noted that the Multiplex team, including NA-IBI as their Architect, were not involved in the decision of who was an NHS group member or lead. All dialogue was through the GGC Project Team. [Refer to Example User Group - Terms of Reference Ward User Group 130110] **(A52701524 - NSGH Users Group Terms of Reference - 13 January 2010 – Bundle 43, Volume 4, Page 1472).**

26. Please confirm who attended the user groups meetings from IBI, Multiplex, the GGC Project Team, IPC, Estates and Clinical teams for the following areas:
Ward 4B – QEUH;
Ward 4C – QEUH;
Level 5 – QEUH;
Critical Care – QEUH;
Ward 2A & 2B – RHC;
PICU RHC – RHC;
All Isolation rooms

NA-IBI department leads were Terry Sullivan - Adult Hospital Wards Design Lead which included Level 5 – QEUH; Graham Harris - Adult Hospital (QEUH) Critical Care and A&E Design Lead; Mark Drane – Adult Hospital Haematology-Oncology and Renal Design Lead which included Ward 4B and

Ward 4C - QEUH; and Jonathan Hendrick - Children's Hospital Design Lead, who attended all meetings on Ward 2A & 2B – RHC and PICU – RHC. Isolation rooms were reviewed in the department they were located, not separately. GGC Project Team – for QEUH departments Heather Griffin – Project Manager for the Adult Hospital; for RHC departments Mairi Macleod – Project Manager for the new Children's Hospital; for QEUH and RHC there was consistent attendance from the GGC Project Team - Fiona McCluskey – Senior Nurse Advisor; Frances Wrath - Project Manager – Enabling; Karen Connelly – FM & Estates representative; Jackie Stewart – IPC representative. The Clinical Teams would include the designated department Group Lead and the agreed users. Heather Griffin, or Carol Craig on behalf of Heather; and Mairi Macleod, or Allyson Hirst on behalf of Mairi, distributed the UGM meeting packages to the clinical teams. The distribution usually included David Bower and Darren Smith from Multiplex, although they were not always in attendance in the meetings. Bill McGaugie from Doig and Smith (Multiplex's appointed QS), and Paul Britton or Scott McCallum from Tribal (Multiplex's Health Care Planners) were also in attendance representing Multiplex. Refer to the UGM Department Tracking Schedule, Meeting Schedule **(A52701446 - NSGH - 1:200 User Group Meeting Tracking Schedule & Programme Rev 7 - 08 March 2010 – Bundle 43, Volume 4, Page 749)** and relevant meeting attendance sheets.

27. How often were user group meetings scheduled to review design proposals and agree the design with the user groups?

A. There were 3 rounds of UGMs to review and agree the 1:200 department layouts. 2 rounds of UGMs to review and agree the 1:50 room type layout plans. Pre-UGM reviews with the GGC project team to agree the 1:50 fully loaded department layouts prior to 1 final round of UGMs. In total there were 6 rounds of user group meetings with the user groups to review the design proposals. Thereafter further 'sweep-up' meetings took place to close out any outstanding design issues. These were only held with the GGC Project Team, and not the full user groups. The respective GGC Project Managers for the Adult Hospital (Heather Griffin) and Children's Hospital (Mairi Macleod) would consult with their users if they considered there were any issues.

28. How were drawings approved to proceed to construction?

A. Multiplex used a system called Aconex to manage the documents and for information control of the Project. Multiplex produced an "Aconex User Manual" [Refer to Aconex User Manual] **(AA52700949 - NSGH - ACONEX User Manual - Documents and Information Control Procedures - undated – Bundle 43, Volume 4, Page 297)** which also included the protocols for reviewing and commenting on sub-contractor's proposals. All drawings prepared for construction had to be processed through Aconex, with a drawing requiring a status/approval from Multiplex prior to proceeding to construction. In the case of the design drawings, samples and other documentation, which was agreed as requiring client review, the Reviewable Design Data (RDD) process was followed. Any documentation which required client review and approval needed to be approved by the client prior to construction. Not all project documentation required client approval, the agreed list of drawings was captured on the RDD Schedule. Volume 2/1 Appendix K Design Development captured the Client requirements Part 1 – minimum information required to be agreed with the Board in advance of FBC; and Part B – minimum design information requirements required for client approval. This essentially formed the basis of the Reviewable Design Data. Refer to **A52701573 – NSGH Invitation to participate in Competitive Dialogue Volume 2/1 Appendix K – undated - Bundle 43, Volume 5, Page 222.**

29. The Inquiry understands that ADB codes were assigned to individual rooms - (**A34099838 – South Glasgow New Hospital RDS Development Process Bundle 43, Volume 1, Page 73)** was provided to the Inquiry by IBI. Appendix one, lists Draft RDS Batches, can you please confirm what the following codes mean for each room

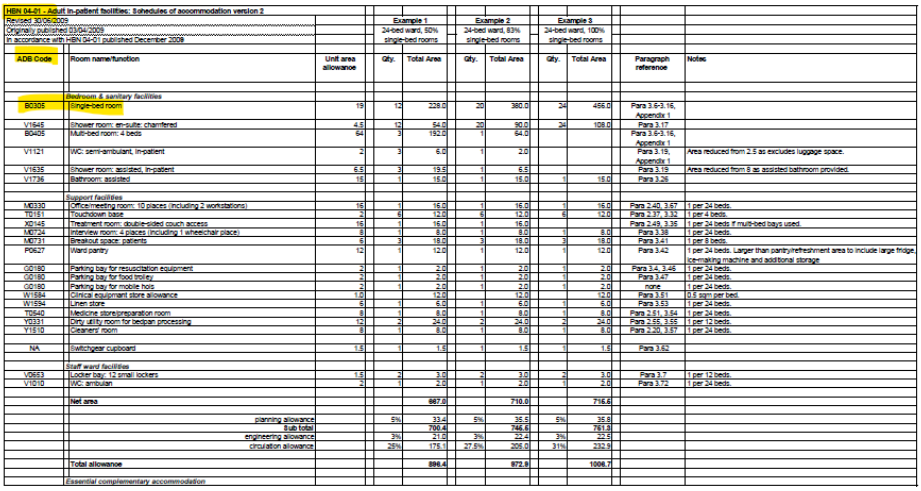
A. These are the NHS Activity Database (ADB) room codes – known as the ADB code. Each Room Type available in the Activity Database has an identified code. They used to all be linked back to the HBN for each department with a Schedule of Accommodation (SoA) included usually at the back of the HBN. With the different dates of HBN updates this was not always consistent. For instance, the Critical Care HBN at the time of the design did not include the SoA, but the current HBN version of the HBN does include the SoA with the list of ADB room codes. HBN 23 - Hospital accommodation for children and young people **(A52701575 – HBN 23 Hospital Accommodation for Children and Young People - Bundle 43, Volume 5, Page 251)** has not been updated since 03/01/2005. The coding system was originally initiated by NHS Estates. In January 2017 Talon Solutions took on the responsibility for sales and distribution of ADB, with a continuous development program to reflect guidance and an ongoing updated Revit Library. https://www.talonsolutions.co.uk/about-us.

In order to respond to each code query, I consulted our current UK Database Manager and asked him to prepare the Room Lists pages from all the versions of ADB Manager we currently have available on our systems. This allowed me to make an informed assessment of the different types of codes against the room types in question.

Batch 1 rooms – Adult's Inpatient and support (pg.5)
B0305A - Single-bed room: HBN 04-01

B0305A is the ADB code for a standard Adult Single-bed room, as described in HBN 04-01 - Adult in-patient facilities. 'B0' being the code used by ADB Manager for Single-bed Room Types. Refer to page 49 HBN 04-01 - Adult in-patient facilities which includes the template Schedules of Accommodation

linking the ADB codes for each room type within a standard HBN 04-01 inpatient ward.



HBN 04-01 - Adult in-patient facilities: Schedules of accommodation version 2
Revised 30/06/2009
Originally published 03/04/2009
In accordance with HBN 04-01 published December 2008

ADB Code	Room name/function	Unit area allowance	Example 1: 24-bed ward, 50% single-bed rooms Qty.	Example 1 Total Area	Example 2: 24-bed ward, 83% single-bed rooms Qty.	Example 2 Total Area	Example 3: 24-bed ward, 100% single-bed rooms Qty.	Example 3 Total Area	Paragraph reference	Notes
	Bedroom & sanitary facilities									
B0305	Single-bed room	19	12	228.0	20	380.0	24	456.0	Para 3.6-3.16, Appendix 1	
V1646	Shower room: en-suite: chamfered	4.5	12	54.0	20	90.0	24	108.0	Para 3.17	
B0405	Multi-bed room: 4 beds	64	3	192.0	1	64.0			Para 3.6-3.16, Appendix 1	
V1121	WC: semi-ambulant, in-patient	2	3	6.0	1	2.0			Para 3.19, Appendix 1	Area reduced from 2.5 as excludes luggage space.
V1635	Shower room: assisted, in-patient	6.5	3	19.5	1	6.5			Para 3.19	Area reduced from 8 as assisted bathroom provided.
V1736	Bathroom: assisted	16	1	16.0	1	16.0	1	16.0	Para 3.26	
	Support facilities									
M0330	Office/meeting room: 10 places (including 2 workstations)	16	1	16.0	1	16.0	1	16.0	Para 2.40, 3.67	1 per 24 beds.
T0181	Touchdown base	2	6	12.0	6	12.0	6	12.0	Para 2.37, 3.32	1 per 4 beds.
X0145	Treatment room: double-sided couch access	16	1	16.0	1	16.0			Para 2.49, 3.35	1 per 24 beds if multi-bed bays used.
M0724	Interview room: 4 places (including 1 wheelchair place)	8	1	8.0	1	8.0	1	8.0	Para 3.38	1 per 24 beds.
M0731	Breakout space: patients	6	3	18.0	3	18.0	3	18.0	Para 3.41	1 per 8 beds.
P0627	Ward pantry	12	1	12.0	1	12.0	1	12.0	Para 3.42	1 per 24 beds. Larger than pantry/refreshment area to include large fridge, ice-making machine and additional storage.
G0180	Parking bay for resuscitation equipment	2	1	2.0	1	2.0	1	2.0	Para 3.4, 3.46	1 per 24 beds.
G0180	Parking bay for food trolley	2	1	2.0	1	2.0	1	2.0	Para 3.47	1 per 24 beds.
G0180	Parking bay for mobile hois	2	1	2.0	1	2.0	1	2.0	none	1 per 24 beds.
W1684	Clinical equipment store allowance	1.0		12.0		12.0		12.0	Para 3.61	0.5 sqm per bed.
W1684	Linen store	6	1	6.0	1	6.0	1	6.0	Para 3.63	1 per 24 beds.
T0540	Medicine store/preparation room	8	1	8.0	1	8.0	1	8.0	Para 2.61, 3.64	1 per 24 beds.
Y0331	Dirty utility room for bedpan processing	12	2	24.0	2	24.0	2	24.0	Para 2.55, 3.55	1 per 12 beds.
Y1910	Cleaners' room	8	1	8.0	1	8.0	1	8.0	Para 2.20, 3.87	1 per 24 beds.
NA	Switchgear cupboard	1.8	1	1.8	1	1.8	1	1.8	Para 3.62	
	Staff ward facilities									
V0663	Locker bay: 12 small lockers	1.8	2	3.6	2	3.6	2	3.6	Para 3.7	1 per 12 beds.
V1210	WC: ambulant	2	1	2.0	1	2.0	1	2.0	Para 3.72	1 per 24 beds.
	Net area			**867.8**		**710.0**		**716.6**		
	planning allowance		5%	33.4	5%	35.5	5%	35.8		
	Sub total			**790.4**		**746.6**		**761.3**		
	engineering allowance		3%	21.8	3%	22.4	3%	22.5		
	circulation allowance		28%	175.1	27.6%	205.0	31%	232.9		
	Total allowance			**886.4**		**872.8**		**1006.7**		
	Essential complementary accommodation									

Extract from HBN 04-01 - Adult in-patient facilities **(A52701567 - HBN 04-01 Supplement 1 - Isolation facilities for infectious patients in acute settings Bundle 43, Volume 5, Page 168).**

B0308A is the ADB code for an Isolation Adult Single-bed room, as described in HBN 04-01 - Adult in-patient facilities. Isolation suites. ‘B0’ being the code used by ADB Manager for Single-bed Room Types.
Refer to page 50 HBN 04-01 - Adult in-patient facilities which links the ADB codes for the additional optional accommodation of Isolation Room and Lobby to Isolation Room. In addition, HBN 04-01 notes that,

‘Single-bed rooms provide effective isolation for many patients. In some cases, however, a greater degree of isolation may be required.’

	Entrance & reception facilities									These may be shown in fractions. They should be shared with other facilities. On a scheme they will be rounded up after the shared allowance is calculated.
J0232	Reception: 2 person	11	1	11.0	1	11.0	1	11.0	Para 3.3, 3.64	1 per 24 beds.
J1152, J1413	Waiting area (size based on number of places)	1.7	6	10.3	6	10.3	6	10.3	Para 3.3, 3.64	1 per 4 beds. For details of unit area allowance see HBN 00-03
V1121	WC: semi-ambulan	2.5	1	2.5	1	2.5	1	2.5	Para 3.66	1 per 24 beds.
V0922	WC: independent wheelchair	4.8	0.5	2.3	0.5	2.3	0.5	2.3	Para 3.66	1 per 48 beds.
	Additional clinical facilities									
W1475	Clean supply room allowance	1.0		8.0		8.0		8.0	Para 2.61, 3.49	0.34 sqm per bed.
V0642 or V0646	Disposal hold allowance	1.0		6.0		6.0		6.0	Para 3.65	0.25 sqm per bed.
	Staff facilities									
D0434	Staff rest and mini kitchen (size based on number of seats)	1.8	3	5.4	3	5.4	3	5.4	Para 3.77	3 for 9 staff (maximum staff on shift). Space allowance should be combined with neighbouring wards to create a viable staff rest room. For details of unit area allowance see HBN 00-03
H1304	Seminar room: 24 places (including 1 wheelchair place	32	0.4	12.0	0.4	12.0	0.4	12.0	Para 2.66, 3.80	1 per 64 beds.
V0554, V0725, V1321, V0667	Communal changing area (size based on number of lockers)	1.4	18	25.2	18	25.2	18	25.2	Para 3.73	Twice number of lockers as staff on shift + 10% contingency (rounded). Space allowance should be combined with neighbouring department to create a viable male and female changing rooms. For details of unit area allowances see HBN 00-03
V1010	WC: ambulan	2	1	2.0	1	2.0	1	2.0	Para 3.73	1 for up to 20 lockers.
	Net area			**84.8**		**84.8**		**84.8**		
	planning allowance		5%	4.2	5%	4.2	5%	4.2		
	Sub total			**88.8**		**88.8**		**88.8**		
	engineering allowance		3%	2.7	3%	2.7	3%	2.7		
	circulation allowance		25%	22.2	25%	22.2	25%	22.2		
	Total allowance			**113.7**		**113.7**		**113.7**		
	Optional accommodation									
T0535	Clean utility room	16	1	16.0					Para 2.61	Alternative to clean supply and medicine store/preparation room
V1535	Shower room: assisted	8	1	8.0					Para 3.26	Alternative to assisted bathroom in wards with multi-bed bays.
M0727	Sitting room: 7 places (including 1 wheelchair place)	12	1	12.0					Para 3.41	Alternative to patient breakout space.
NA	Regeneration Kitcher								Para 3.46	Project specific. Requirements by catering contractor.
G0510	Lobby to isolation room	6	1	6.0					Para 3.25	
B0308	Isolation room	19	1	19.0					Para 3.25	In lieu of standard single-bed room provision
V1131	Nappy changing room	6	1	6.0					Para 3.66	Optional addition to waiting space
P0808	Vending machine	3	1	3.0					Para 3.66	Optional addition to waiting space

Note 1	**Relationship of schedule to ADB where allowances used** ADB room code relates to one example size of this space and does not reflect space requirements of these schedules. Projects will scale up/down according to schedule.
Note 2	**Essential complementary accommodation** Accommodation to which the department needs access, but may be shared with nearby departments.
Note 3	**Optional accommodation** Accommodation which is not expected in all departments, but, dependent on local policy, may be needed in addition to or instead of rooms listed in the schedule.

Version 2:
ADB code for breakout changed to M0731.
Electrical switchgear cupboard revised to 1.6 sqm (from 2 sqm).
Minor revisions to room names that do not affect content or function.

Extract from HBN 04-01 - Adult in-patient facilities

B1602B - Single bedroom, isolation: Critical care **(A52701439 - NSGH drawing of second floor, theatres, AODOS & Recovery, Ceiling and Soffit Plan - 02 March 2012 – Bundle 43, Volume 4, Page 678)**

B1602B is the ADB code for an Isolation Adult Single-bed room in the Critical Care Department. 'B16' being the code used by ADB Manager for Critical Care.

G0507A - Lobby: ventilated (isolation suite) (**A52701439 - NSGH drawing of second floor, theatres, AODOS & Recovery, Ceiling and Soffit Plan - 02 March 2012 – Bundle 43, Volume 4, Page 678)**

G0507A is the ADB code for an Entrance lobby for barrier nursing to a ventilated (isolation suite) and was matched by Tribal as the appropriate isolation lobby for the Critical Care Isolation bedrooms. 'G05' being the code used by ADB Manager for lobbies.

G0510A - Lobby to isolation room - HBN 04-01 **(A52701439 - NSGH drawing of second floor, theatres, AODOS & Recovery, Ceiling and Soffit Plan - 02 March 2012 – Bundle 43, Volume 4, Page 678)**

G0510A is the ADB code for a Lobby to an Inpatient Isolation Suite as described in HBN 04-01 - Adult in-patient facilities. Isolation suites. ‘G05’ being the code used by ADB Manager for lobbies.

X0252A - Isolation treatment room: dialysis, 1 patient (pg.6) **(A52701439 - NSGH drawing of second floor, theatres, AODOS & Recovery, Ceiling and Soffit Plan - 02 March 2012 – Bundle 43, Volume 4, Page 678)**
X0252A is the ADB code for an isolation treatment room for renal dialysis. ‘X0’ being the code used by ADB Manager for all Treatment Room Types.

Batch 2 Rooms – Children’s inpatient and support (pg.7)
B1802C - Single bedroom: Children/young people, with relatives overnight stay **(A52701439 - NSGH drawing of second floor, theatres, AODOS & Recovery, Ceiling and Soffit Plan - 02 March 2012 – Bundle 43, Volume 4, Page 678).**
B1802C is the ADB code for a standard Children/young person’s single-bed room, which includes additional space and equipment for a relative’s overnight stay, usually in the form of a pull-down bed. ‘B18’ being the code used by ADB Manager for Children specific single bedrooms.

B1805C - Single bedroom, isolation: Children/young people, with relatives overnight stay **(A52701439 - NSGH drawing of second floor, theatres, AODOS & Recovery, Ceiling and Soffit Plan - 02 March 2012 – Bundle 43, Volume 4, Page 678).**
B1805C is the ADB code for an Isolation Children/young person’s single-bed room, which includes additional space and equipment for a relative’s overnight stay, usually in the form of a pull-down bed. ‘B18’ being the code used by ADB Manager for Children specific single bedrooms.

G0510B - Lobby to isolation room - HBN 04-01 **(A52701439 - NSGH drawing of second floor, theatres, AODOS & Recovery, Ceiling and Soffit Plan - 02 March 2012 – Bundle 43, Volume 4, Page 678)**
G0510B is the ADB code for an Entrance lobby for barrier nursing to a ventilated (isolation suite). ‘G05’ being the code used by ADB Manager for lobbies. This ADB code was used for all lobbies to isolation rooms which

comply with HBN 04 Supplement 1/SHPN4 Supplement 1, both in the Adult's and Children's Hospitals

30. How were rooms that accommodated immunocompromised patients identified in the draft RDS batches? In particular, how were the rooms allocated for heamato-oncology identified in the draft RDS batches?

A. I have checked the information provided by our UK Database Manager and include the full contents of ADB Manager Room Lists from 2013, 2017 and 2022, which are the ADB libraries we have access to on our system. There are no specific Single Rooms in ADB which identify immunocompromised patient bedrooms (e.g. Haematology-Oncology-BMT). I believe the assumption in ADB is that the patients most at risk will be accommodated within Isolation Rooms. The list of patient rooms available in the database can be seen in the ADB Room Lists provided **A52701557 - ADB List of Rooms 2013 - Bundle 43, Volume 5, Page 103; A52701553 - ADB List of Rooms 2017 - Bundle 43, Volume 5, Page 57; A52701554 - ADB List of Rooms 2022 - Bundle 43, Volume 5, Page 78.** The draft RDS batches were developed by Tribal with the GGC NHS project team and using the SoA version provided by the NHS which allocated their suggested ADB briefing code. From reviewing the Template RDS package, the Adult Haematology-Oncology Patient Room was allocated the ADB briefing code B0303, the same as the Generic Patient Room. Refer to **A34099829 – NSGH - Schedule of Accommodation Bundle 43, Volume 6, Page 8.** The difference between the 2 rooms at the time of the Template RDS was the additional note that all bedrooms will require positive pressure, and 3 Beds are to be plumbed for haemodialysis. The ADB code for the Adult Haematology-Oncology Patient Rooms was eventually agreed as B0303A3, which I have reviewed within the later RDS and environmental schedules contained in our project records. This differentiated it from the Generic Patient Room which remained as B0303A. I believe this change to the code took place during the RDD review process. I cannot confirm if this was as a result of different equipment briefing requirements, or because the ward accommodated immunocompromised patients. The Adult Renal patient room ADB code was eventually agreed as B0303A2, which I believe was due to additional specialist equipment for dialysis, including reverse osmosis (RO) water. And the Acute Assessment Ward and Stroke Ward patient room was eventually agreed as B0303A1, which I believe was a variant as a result of the different room layout design which had an outboard ensuite; these

bedrooms did not have an interstitial back-to-back ensuite as the generic inpatients. The Children's Haematology-Oncology Patient Room was allocated the ADB briefing code B1802, the same as the Generic Children's Patient Room. Refer to **A52701410 – NCH - Stage 2 Schedule of Accommodation Bundle 43, Volume 6, Page 54.** The draft RDS batches updated this code to B1802C.

31. How were different types of isolation rooms (e.g. Bone Marrow Transplant, those for infectious disease patients) identified in the draft RDS batches?

A. The draft RDS batches were developed with the GGC NHS project team and using the SoA version provided by the NHS which allocated their suggested isolation room ADB briefing code. Again, I have checked the information provided by our UK Database Manager and the NHS ADB database does not identify isolation rooms as Bone Marrow Transplant (BMT). The list of isolation rooms available in the database can be seen in the ADB Room Lists provided **A52701557 - ADB List of Rooms 2013 - Bundle 43, Volume 5, Page 103**; **A52701553 - ADB List of Rooms 2017 - Bundle 43, Volume 5, Page 57; A52701554 - ADB List of Rooms 2022 - Bundle 43, Volume 5, Page 78.** The draft RDS batches contained B0308A inpatient isolation rooms; B1602B critical care isolation rooms and B1805C children's inpatient isolation rooms. In addition, X0252A Renal Dialysis Isolation Treatment Rooms.

32. How did the information contained in the document above progress to become the final RDS?

A. Please refer to the detailed supporting paper I prepared for a full description of the RDS process.

33. How were RDS approved to proceed to construction?

A. Please refer to the detailed supporting paper I prepared for a full description of the RDS process.

34. Who was responsible for populating information/data into the RDS?

A. There is a shared responsibility for reviewing the information/data on the RDS. The NHS initially assigned ADB brief/room codes to each room via their SoA, confirming their required brief. Tribal (the healthcare planner) then reviewed and ensured the latest version of ADB was used, and prepared the draft Template RDS. The Clinical Brief/Activity Data was exported into excel and issued to the NHS to review and validate/check the clinical briefing information/data was correct. The environmental data was exported and issued to ZBP (M&E) for reviewing, checking and populating as required. NA-IBI would have reviewed the finishes page, however as the information is generic, finishes strategy drawings were agreed to be used to replace this data after the Template RDS Stage. NA-IBI also reviewed the equipment data, with input from ZBP for the mechanical and electrical components. NA-IBI also implemented the agreed equipment standardization, including the creation of assemblies for items such as wash hand basins, bedheads and medical pendants.

35. Who was responsible for populating environmental information/ data into the RDS?

A. The Mechanical & Electrical Engineers ZBP.

36. Who was responsible for coordinating the RDS with the other consultants and the GGC Project Team and user groups?

A. At the RDS Template Stage it was Tribal, thereafter it was NA-IBI.

37. Who presented the environmental data at the user group meetings?

A. The RDS were primarily used in the UGMs to review the equipment list. The environmental data was reviewed separately in M&E design workshops which NA-IBI were not present. We received the comments and processed the updated RDS to include the updated environmental data. I do not recall the environmental data being presented at the UGMs; my understanding was it was presented by BM/ZBP within MEP Workshops. NHS-GGC may have presented the full RDS to all or some of their user groups separately to receive comments.

38. Who was responsible for reviewing the information in the RDS from the GGC Project Team and who approved signed off on the environmental data from the GGC Project Team for the following areas:
Ward 4B – QEUH;
Ward 4C – QEUH;
Level 5 – QEUH;
Critical Care – QEUH;
Ward 2A & 2B – RHC;
PICU RHC – RHC;
All Isolation rooms

The 'signed' RDS were stamped by the NHS Board signifying its approval and signed by Frances Wrath. Ms Wrath was the NHS Lead in the RDS process and was responsible for liaising and consulting with the wider GGHB team, including their relevant internal stakeholders. Other Technical Advisors, which IBI understands were led by and included Currie & Brown, supported the NHS Board with the review and approval of the environmental data within the RDS.

39. How was the ventilation derogation communicated to users during the RDD process?

A. I am not aware how this was communicated with the users. The ventilation derogation had already been agreed prior to the commencement of the user meetings.

40. Please describe how the technical requirements (air change rates, pressure differentials and filter requirements) for each ward were managed and approved during the user group meetings and the RDD process, including your role and involvement.

A. As noted, the RDS were primarily used in the UGMs to review the equipment list. The environmental data was reviewed separately in M&E design workshops which NA-IBI were not present. We received the comments and processed the updated RDS to include the updated environmental data. I do not recall the environmental data being presented at the UGMs, my understanding was it was presented by BM/ZBP within M&E Workshops. The GGC Project Team may have presented the full RDS to all or some of their user groups separately to receive comments. My role was to develop the initial design process, via user group meeting timetables, programmes and tracking schedules, and to monitor and report progress to both the Multiplex Design Team and NSGH Project Design Meeting. I had a similar co-ordinator role for the RDD process, albeit I started to have less day-to-day involvement towards the end of 2012. I have located records of all the environmental schedules issued and returned by ZBP, as well as the RDD comments we received which impacted the environmental design. Julie Miller from Multiplex was leading the coordination and close out of the environmental comments on the RDS and checking these against the ZBP M&E design.

[I include the NA-IBI records of the returned RDD comments on the Environmental Data review workshops which I understand represented the final comments from the NHS and Multiplex.]

Please also refer to the detailed supporting paper I prepared for a full description of the RDS process.

41. Were any requests made by the User Groups during the RDD process that were refused? If so, please provide details.

A. I was not in attendance at the user group meetings but any requests which were deemed as changes needed to go through the change control process. Refer to NHS document - 1-200 Design Process Explained – Final **A52701411 – 1:200 & 1:50 Design Process Explained Bundle 43, Volume 5, Page 987**, which was shared with the User Groups by the GGC Project Team. It was not IBI's role to assess changes, or to refuse requests.

42. Please confirm how long the RDD process lasted for and when designs for all wards was completed?

A. The RDD approvals continued throughout Stage 3 from 2011 to 2014 and were managed by Multiplex on Aconex. The scanned/NHS signed drawings were generally uploaded by Multiplex as a record copy and distributed to the relevant Consultant. [Refer to RDD SCHEDULE AS AT 01.05.14. This is the last version I have located on Aconex] **(A52701430 - "NSGH Adults and Childrens Hospital - RDD Master Schedule Reviewable Design Data - Issued for Approval - 02 May 2014 – Bundle 43, Volume 4, [Paper Apart]).** The whole process for each department, including the wards, was structured around the Construction Programme. The departments were allocated 'Production Groups', which depended on which construction zone they were located. In addition, different drawing packages were required at differing dates, again dictated by the Construction Programme. The reflected ceiling plans for the children's wards, a later package due to the co-ordination process with M&E, appear to the last wards in the sequence; these were approved on or around 21 November 2013. From our internal records this appears to be last set of RDD design approvals for IBI drawings in relation to the wards.

43. Describe your involvement and understanding, if any, of the decision to remove carbon filters? What was the rationale behind this decision, who was involved and what advice, if any, was sought in reaching this decision?

A. I was not involved in the decision to remove carbon filters, and as architects IBI would have limited expertise in assessing the rationale. However, I have spent some time reviewing our records to assist in providing a response. There were regular Low Carbon Meetings which were chaired by Ecoteric, who were the NHS GGC's BREEAM and Energy Consultant. The IBI Low Carbon meeting representative was our Façade Lead, John Wiggett. He attended the meetings and supplied Ecoteric with the architectural information required, which was predominantly related to the Façade Design. I can see the Low Carbon Trackers were shared regularly on Aconex by Susan Logan, who was the Ecoteric Lead. The distribution was generally, BM – Darren Pike and Ken Hall; NHS GGC – Alan Seabourne and Peter Moir; Currie & Brown – David Hall; ZBP – Steve Pardy and John Wiggett – IBI. Carbon filters were associated with the air handling plant which was designed by ZBP. I have located records of the Ecoteric Low Carbon Meeting Tracker where discussions on the carbon filter strategy were recorded. There appears to have been a paper developed to review options to lower the specification/requirements. Refer to **Low Carbon Tracker seventh contract issue 07/06/11 (A52701404 – Excerpt - NSGH Low Carbon Tracker - Ecoteric 2011 Bundle 43, Volume 5, Page 959)**. 'Tracker item dated 30/4/11 - Can carbon filters be omitted or by passed? Note that F7 required to protect not G4 as currently scheduled….. WLC for no filtration, full filtration, part filtration to be prepared for Board. Must include labour and cost of prefiltration and carbon filtration changes and future price risk…… Savings paper still awaited – agreed that partial option should include theatres/ITU/CCU/isolation rooms/aseptic csuite/kitchen Revised vent report does not include this'. I cannot locate a copy of the savings paper on Aconex and assume this was issued offline and not shared with IBI.

44. Were any specialist design workshops required? If so, please provide details.

A. Specialist design workshops were required for the Imaging department; Renal Ward and Dialysis; Decontamination; Equipment, including Specialist Medical Equipment. There were Technical Design Meetings, Technical Design Group Workshops – there were 3 initial design workshops with the NHS Radiation Protection Advisor/Medical Physics team to agree the Radiation Protection Strategy. The Medical Planning and Technical Design Groups amalgamated for efficiency purposes in mid-2010 (as they contained the same attendees and had cross over agendas).

The Medical/Technical meetings were 'retired' at the end of Stage 2 and replaced with the Adult & Children's Hospital Design Group at the beginning of 2011. NA-IBI chaired these meetings, and they were intended to cover an overview of the design process including specialist design issues.

There were separate M&E Technical Design Workshops which NA-IBI were not in attendance, actions and issues were reported back by ZBP at the Adult & Children's Hospital Design Group, and Design Team Meetings.

There was a separate specialist IT Group, again not attended by NA-IBI. There were also Design Team Meetings & Design Co-ordination Meetings and Workshops held throughout the project, which were held as required to cover the detailed co-ordination issues between the Design Team consultants and supply chain, including: MEP Co-ordination Workshops (with MEP design consultants and subcontractors); Structural Co-ordination Workshops; Fire Strategy Co-ordination Workshops; Landscape Co-ordination Workshops; Laboratory Co-ordination Workshops (interfaces with basement tunnel and external works); Tender Package Meetings; Construction Package Meetings; and Subcontractor Package Review Workshops.

45. Were Value Engineering meetings/workshops held during the design phase?

A. Value engineering (VE) reviews were embedded into the Design Team Meetings (DTM) and Design Co-ordination Workshops and are part and parcel of Design and Build Contracts. During the Bid Design Stage there were numerous discussions as the proposed design was developed. During Stage 2 as drawing packages were developed for cost checks (T1 issue), the design was subject to review to ensure it was affordable and in line with the Cost Plan. This was managed by Multiplex's Procurement team, with support from Doig and Smith, their appointed QS. This process continued in Stage 3 with the Multiplex team and their subcontractors, where the majority of the tendering of the internal architectural packages took place. The subcontractors would often submit alternative proposals to the IBI tendered design. Any material changes to the NHS approved design in Stage 3 were subject to the RDD process and review and approval before they could be implemented in the design. An example [Stage 3 Adults & Childrens Hospitals Tender Event Schedule Week 176] **(A52701555 – Stage 3 Adults & Children's Hospitals Tender Event Schedule Bundle 43, Volume 5, Page 99)** is provided to demonstrate the Package Procurement process; a record of IBI's Package Co-ordination Schedule [NSGH Design Work Group&Package Co-ordination Schedule_DT no33_20-08-12] **(A52701423 - NSGH - Design Work Groups & Package Co-ordination Schedule - 17 July 2012 to 20 August 2012 – Bundle 43, Volume 4, Page 409)** is provided to demonstrate the design package management and co-ordination for the architectural packages; and an example record for specific VE meetings IBI attended on the architectural packages (**A52701550 – BMCE Value Engineering Proposals with meeting comments - Bundle 43, Volume 5, Page 52).** Any M&E VE reviews would have been discussed in separate meetings, which IBI would generally not be in attendance, unless there was an architectural impact.

Ward 4B and 4C

46. The Inquiry understands that Ward 4B in the QEUH was originally intended to provide accommodation for Renal and Haemato-oncology patients. The 2009 NHS Clinical Output Specification for the Haemato-oncology ward stated:

A. "Please note the haemato-oncology ward area has a very specific function and a considerably higher than average requirement for additional engineering support/infrastructure. There should be no opening windows, no chilled beams. Space sealed and ventilated. Positive pressure to rest of the hospital and all highly filtered air >90%, probably best HEPA with adequate number of positive pressure sealed HEPA filtered side rooms for neutropenic patients as in the Beatson West of Scotland Cancer Centre." **(Bundle 16, Document No.15, Page 1595)**

However, following a Change Order Request in July 2013 by Jonathan Best **(Bundle 16, Document No. 29, Page 1699)** it was confirmed that the Bone Marrow Transplant (BMT) service would transfer to Ward 4B in the QEUH and the haematology patients that were originally planned to accommodate Ward 4B would move to Ward 4C.

a) Please confirm how this change was communicated to Multiplex and IBI and how this change was captured in the revised design and specification documentation, following the Change Order Request.

A. I was not involved directly with the change, however from reviewing our records it appears the first notification of the change came from Multiplex via Aconex BMCE-EWN-000382 **(A52701436 - IBI Nightingale - Amendment to Level 04 ward wing and 2no isolation rooms to upgrade to Haemato-oncology standard, and amend ward entrance to typical ward layout - 22 May 2013 – Bundle 43, Volume 4, page 670)** - Change for costing only - Changes to south west ward wing adjacent to core G 4th floor and two isolation rooms in the renal ward' which was issued to the Design Team by Multiplex on 13th May 2013. This included attached documents 'Board Plan Mark Up' and 'Comments and Board Costing Notes.' The description of Change appears to be similar to the aforementioned Change Order Request. I have located a design fee quote which was created on or around 22nd May

2013 [internal ref:09080/120_09080_120 Amendment to Level 4 ward wing] **(A52701436 - IBI Nightingale - Amendment to Level 04 ward wing and 2no isolation rooms to upgrade to Haemato-oncology standard, and amend ward entrance to typical ward layout - 22 May 2013 – Bundle 43, Volume 4, page 670).** PMI 228 - Change to NSGH Level 4 - hepa filtration **A52701566 - NSGH Project Management Instruction Report - Bundle 43, Volume 5, Page 166** was issued by Multiplex to IBI and the Design Team on 17/07/2013 through a further Aconex Early Warning Notice BMCE-EWN-000480 **(A52701433 - Mail from James Bailey to Gavin Burnett and others - PMI 228 - Change to NSGH Level 4 - Hepa Filtration - 17 July 2013 – Bundle 43, Volume 4, Page 666).**

The architectural design packages were updated and re-issued under the RDD process on or around October 2013. In addition. ZBP and Mercury updated the M&E design packages around the same time. All drawings were issued, reviewed and approved by GGC NHS under the RDD process.

b) Please confirm if IBI highlighted any risks with the proposal to move the adult BMT Unit to Ward 4B, QEUH.

A. The decision to move the adult BMT unit to Ward 4B was communicated to IBI as an instruction from GGC NHS. IBI would have proceeded on the basis that GGC NHS had carried out a risk assessment and our role was to implement the change in accordance with the GGC NHS instructions.

c) Please confirm if IBI highlighted any risks with the proposal to move the adult haemato-oncology ward from Ward 4B to Ward 4C?

A. As above.

d) Did IBI have any involvement in advising the GGC Project Team that the requirements set out in SHTM 03-01 relating to air change rates, pressure differentials and filtration requirements would not be achievable in Ward 4B at the QEUH?

A. I was not involved directly with the change, however from reviewing our records it appears the instruction and briefing notes suggested which rooms now required hepa-filtration; this in turn was captured in the sketch

drawing/mark-up [Haemato-oncology - Board response 250713 **(A52701421 - PMI228 Proposal - 22 July 2013 – Bundle 43, Volume 4, Page 407)**]. I believe IBI attended meetings to discuss and agree this sketch design with the NHS, which was the IBI response to PMI228 dated on or around 22nd July 2013. The Board Plan Mark Up drawings requests 'hepa-filtration to same standard as current Haematology-Oncology Ward'. I can see evidence in the **A52701579 – Proposed Design Programme PMI 228 - Bundle 43, Volume 5, Page 392. (A52701434 - PMI 228 - Proposed Design Programme - undated – Bundle 43, Volume 4, Page 669)** that activity Item 1 'BMCE / Design Team meet with NHS and agree Layout / Ventilation Schematic / Plant Room Schematic' that the ventilation strategy was to be discussed and agreed. I was not present at these meetings; the change was led by my colleague Liane Edwards who was the NA-IBI Construction Lead Architect and was based on site. I was aware of the design change, but not the associated details.

e) Who approved the lower specification from the GGC Project Team and the Board for the adult BMT service?

A. I do not know who approved this.

f) Why were suspended ceilings proposed and installed in Ward 4B given that the original Clinical Output Specification (COS) referred to 'space sealed'?

A. The ceiling strategy was prepared and agreed as part of the Appendix K/FBC documentation. At the time of approval, on or around 18th October 2010, Ward 4B was specified with the same ceiling as a generic inpatient bedroom, which was mineral fibre tiles in an exposed suspended ceiling grid. The architectural design was based upon the ADB code for Room Type B0305A, which had been selected by the healthcare planner, Tribal, based on the ADB brief advised by GGC as the template for the Ward 4B rooms. The "room design character" information for Room Type B0305A outlined the applicable NHS standards for the ceilings, stating: "Surface Finish (HTM 60): 5 i.e. imperforate; Moisture Resistance (HTM 60): N i.e. normal humidity; Hygiene and cleaning (HTM 60): Paragraphs 2.9 - 2.10". A Type 5 ceiling is usually an exposed grid ceiling. Within HTM60 only a Type 1 ceiling is noted as

'jointless' as an essential requirement, therefore it does not mandate the incorporation of plasterboard ceilings.

Suspended ceilings are compliant; a suspended ceiling is required to conceal the services installed within the ceiling void. The additional COS requirement for space sealed appears to have been missed. This could have been achieved with a suspended concealed grid ceiling system, or a suspended jointless plasterboard ceiling, both sealed at the perimeter with mastic.

g) Please confirm who approved the reflected ceiling plans for this area from the GGC Project Team?

A. Frances Wrath and Peter Moir approved the Fourth Floor Ceiling Finishes Strategy Plan **A52701560 – Fourth Floor Plan - Ceiling Finishes - Strategy Plan - Bundle 43, Volume 5, Page 156** on or around 18th October 2010 for Appendix K/FBC. NA-xx-04-PL-332-103 revision 02 - Fourth Floor Plan; Haemato-Oncology Ward **(A52701441 - NSGH Fourth Floor Plan, Haemato-oncology Ward, Ceiling finishes - Strategy plan - 16 June 2011 – Bundle 43, Volume 4, Page 680);** Ceiling Finishes – 1:200 Strategy Plan was approved by Frances Wrath on or around 11th June 2012 following review and update to reflect the RDD comments. The ceiling plans were updated and re-issued under RDD as part of the PMI228 package. These were commented and stamped on behalf on GGC NHS by David Hall, Currie & Brown on or around 18th November, 2013. There were no comments on the ceiling plans to suggest the ceiling type was incorrect.

h) As construction progressed on site, please confirm if suspended ceilings were highlighted as non-compliant with the COS (works information).

A. Suspended ceilings are compliant; a suspended ceiling is required to conceal the services installed within the ceiling void. I acknowledge that the requirement for 'space sealed' requested within the Clinical Output Specification (COS) should have highlighted the requirement for a different ceiling specification to that required in a generic inpatient bedroom. This could have been achieved with a suspended concealed grid ceiling system, or a suspended jointless plasterboard ceiling, both sealed at the perimeter with mastic. RDD comments were made on the ceiling plans as work progressed

on site, but there were no comments on the Ward 4B patient rooms. The ceilings were replaced post-handover and prior to patient occupation.

i) Why was no back up Air Handling Unit (AHU) provided for Ward 4B? Who approved this decision? What strategy was agreed for PPM or equipment failure?

A. I do not know the details of the agreed AHU strategy, or the back-up plans.

j) In respect of Ward 4C, what was the specification of this ward at the point of the Change Order? Did you understand that Ward 4C was to be used to house immunocompromised patients? If so, what was the justification from departing from SHTM guidance in respect of ventilation, pressure and filtration requirements and who signed this off?

A. My understanding is that Ward 4C was designed as a Renal Ward, following COS NSGACL_Renal_NSG_iss1_rev[1] **(A52697852 - NSGH - Clinical Output Specification for Generic Adult Wards - undated – Bundle 43, Volume 4, Page 46).** 'Generally, environmental and services requirements should correspond to the standards described in the relevant HBN 53 Volumes 1, 2 & 3, HTM's and other technical guidance and the technical output specification for this project.' Following UGM1 on or around 3rd November 2010 we received an email from Heather Griffin to confirm the following' Further to our conversation yesterday I can confirm that haemato-oncology which is currently planned at 14 inpatient beds and 4 day beds will change to 10 beds and no day space. We do however want to keep the 4 inpatient beds released as they will be used by another specialty, the 4 released beds however will not require the specialist hepa-filter ventilation.' The 4 released beds reverted to standard generic inpatient bedrooms at this point. NA-IBI are not engineers and did not design the ventilation, pressure and filtration systems.

k) Why were suspended ceilings proposed and installed in Ward 4C given that the original Clinical Output Specification (COS) referred to 'space sealed'?

A. My understanding is that only the Haematology-Oncology COS referred to 'space sealed', the original COS for Ward 4C was NSGACL_Renal_NSG_iss1_rev[1] **(A52697747 - NSGH - Clinical Output Specification for Renal Department - undated – Bundle 43, Volume 4, Page 29).**

l) Please confirm who approved the reflected ceiling plans for the adult haemato-oncology section, in ward 4C from the GGC Project Team?

A. Frances Wrath and Peter Moir approved the Fourth Floor Ceiling Finishes Strategy Plan NA-XX-04-PL-332-150 revision 02 on or around 18th October 2010 for Appendix K/FBC **(A52701422 - NSGH - Fourth Floor Plan - Cieling Finishes - Strategy Plan - 15 July 2010 – Bundle 43, Volume 4, Page 408)**. NA-xx-04-PL-332-103 revision 02 - Fourth Floor Plan; Haemato-Oncology Ward; Ceiling Finishes – 1:200 Strategy Plan **(A52701441 - NSGH Fourth Floor Plan, Haemato-oncology Ward, Ceiling finishes - Strategy plan - 16 June 2011 – Bundle 43, Volume 4, Page 680)** was approved by Frances Wrath on or around 11th June 2012 following review and update to reflect the RDD comments. The ceiling plans were updated and re-issued under RDD as part of the PMI228 package. These were commented and stamped on behalf on GGC NHS by David Hall, Currie & Brown on or around 18th November, 2013. There were no comments on the ceiling plans to suggest the ceiling type was incorrect.

m) As construction progressed on site, please confirm if suspended ceilings were highlighted as non-compliant with the COS (works information) for the adult haemato-oncology section, in ward 4C.

A. Suspended ceilings are compliant; a suspended ceiling is required to conceal the services installed within the ceiling void. I acknowledge that the requirement for 'space sealed' requested within the Clinical Output Specification (COS) for Haematology-Oncology should have highlighted the requirement for a higher ceiling specification than required in a generic inpatient bedroom. This could have been achieved with a suspended concealed grid ceiling system, or a suspended jointless plasterboard ceiling

both sealed at the perimeter with mastic. The ceiling plans were updated and re-issued under RDD as part of the PMI228 package. These were commented and stamped on behalf on GGC NHS by David Hall, Currie & Brown. On or around 18th November, 2013. There were no comments on the ceiling plans to suggest the ceiling type was incorrect.

n) The COS for the adult haemato-oncology ward stated “no chilled beams” why were chilled beams installed?

A. I am not an engineer, and IBI were not the designers of the ventilation system. This was designed by ZBP the M&E consultant, and Mercury Engineering, the M&E subcontractor.

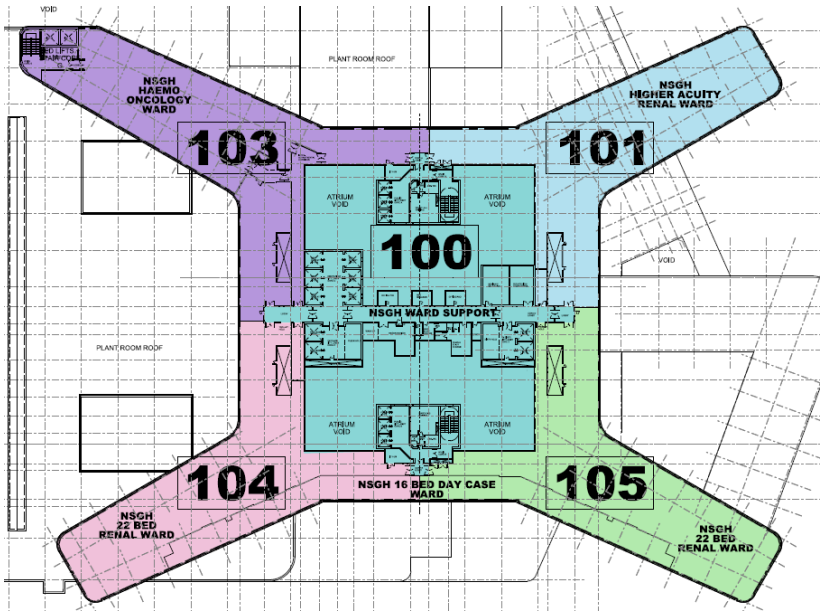
I have reviewed the 1:50 reflected ceiling plans and these indicate ceiling mounted supply grilles to the bedrooms; and ceiling mounted radiant heating panels and ceiling mounted extract grilles to the ensuites. I cannot locate any symbols indicating chilled beams. Earlier revisions had chilled beams to the bedrooms which were instructed to be omitted from the haemato-oncology ward during the user group process. The drawings were updated to PMI228 and the chilled beams which were in the area which had been redesignated generic bedrooms were changed to ceiling mounted grilles, with hepa filters as per the instruction.

ZBP-ZE-04-PL-524-045 revision H (ZBP-ZE-04-PL-524-045 revision H) **(A52701435 - NSGH Haemato-oncology Ward - 1:100 Mechanical Services Ventilation Layout Fourth Floor - January 2011 – Bundle 43, Volume 4, Page 671)** is the final revision and this indicates the update to add hepa filters, and the chilled beams to the bedrooms were changed to a ceiling mounted grille, suggesting mechanical air cooling. The chilled beams were omitted in revisions D/E.

NA-ZE-04-PL-332-513 revision A **(A52701441 - NSGH Fourth Floor Plan, Haemato-oncology Ward, Ceiling finishes - Strategy plan - 16 June 2011 - Bundle 43, Volume 4, Page 680)** indicates the chilled beams; which was subsequently updated to PMI 228 and the chilled beam symbol was changed to a ceiling mounted grille.

I am unsure where the boundaries are between the respective wards on Level 4 since completion and handover. The areas I understood were defined as Renal Wards (as indicated on the plan below) were based upon the ADB code for Room Type B0305A, which had been selected by the healthcare planner, Tribal, based on the ADB brief advised by GGC as the template for the Renal rooms. This is why the M&E design progressed with chilled beams to the Renal Wards, with the exception of the 2 isolation bedrooms within the Higher Acuity Ward

My understanding was the area designed as the haemato-oncology ward had no chilled beams. The area designed for Haematology-Oncology patients was within the numbered 1:200 zone 103 which can be seen on **A52701565 - Fourth Floor Department Layouts - Keyplan (1:200 Set) Bundle 43, Volume 5, Page 167.** Zones 101, 104 and 105 were not designed for haemato-oncology patients, they were designed as Renal Wards and were not included in the scope for PMI 228.



Extract from **A52701565 – Fourth Floor Department Layouts - Keyplan (1:200 Set) - Bundle 43, Volume 5, Page 167.**

o) What was your understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 4B and 4C, and was this

the air change rate achieved? If not, why not and who signed this off? What risk assessments were considered in respect of this decision?

A. I am not an engineer, and IBI were not the designers of the ventilation system. This was designed by ZBP the MEP consultant, and Mercury Engineering, the MEP subcontractor. As far as I was aware, the ventilation/air-change requirements stipulated under the RDSs and Employer's Requirements were being followed by the M&E design team. I do not know what air change rates were achieved, or if there were any risk assessments.

Ward 2A RHC

47. The Inquiry understands that Ward 2A is the paediatric-oncology Unit and includes the Teenage Cancer Trust and the paediatric Bone Marrow Transplant (BMT) Unit - the department is known as the Schiehallion Unit.

a) Confirm your understanding regarding the intended use and purpose of the Ward 2A, what guidance was considered in the design of these wards, what processes did IBI put in place to ensure guidance compliance?

A. Whilst I was not directly involved in the design of the Schiehallion Unit, I understood this unit to be a paediatric-oncology unit, with a description of the services contained within the Clinical Output Specification **(A52701490 – New Children's Hospital - Clinical Output Specification - Haematoma & Oncology Bundle 43, Volume 6, Page 62)**. It included a specialist Radiation Suite, which I had an interface with as I had an overseeing role on the development of the radiation protection strategy during Stage 2 and attended technical review meetings with the GGC medical physicists.

Our Department Design Lead, Jonathan Hendrick, developed the design of this unit. Refer to **Chapter 4.13 – 1:200 Department Plans** page 36 Department #37 UGM – Children's Schiehallion, Day Case & TCT [Ward 2A & 2B – RHC] for a detailed description of the 1:200 user meetings, and summary of the design development.

Reference would have been made to **HBN 23 – Hospital accommodation for children and young people**, which also refers to **HBN 4 Supplement 1**

for Isolation Facilities. Richard Mazuch, NA-IBI's Director of Research at the time, was a co-author of HBN 23 and listed as an architectural advisor; he was involved in the bid design for the Children's Hospital and attended some early meetings with Jonathan. In addition, **SHPN 54 2007 Cancer Care Centres**, would have been considered.

The design had been through a robust design review process and developed in consultation with a clinical user team who represented the Schiehallion Unit. The design had been presented, reviewed, checked and approved through 6xrounds of user group meetings. Thereafter, the detailed technical design followed a series of submissions through the RDD process to validate that it met the agreed project requirements.

b) What changes, if any, were made to the design during construction? Please describe any such changes, describe the impact, if any, on guidance compliance, and describe the sign off process for any such changes and your involvement. Was external advice ever sought in respect of design changes?

A. I am not aware of any changes to the design during the construction of Ward 2A.

c) Describe the IPC involvement in the design of Wards 2A and 2B, who was involved and who signed off the final design and when?

A. The NHS had an IPC representative, Jackie Stewart, as part of their Core Project Team. She was in attendance at all the UGMs and would liaise internally with the wider GGC team. Refer to response to **Question 8** for further details, and **Chapter 4.13 – 1:200 Department Plans** page 36 Department #37 UGM – Children's Schiehallion, Day Case & TCT [Ward 2A & 2B – RHC] for a detailed description of the 1:200 user meetings.

d) What concerns, if any, did you have regarding the final design specification of Wards 2A, and what action, if any, did you take in respect of these concerns?

A. I was satisfied at the time that all the departments, including Ward 2A, had been through a robust design review process, including extensive user engagement, and that as a result that the design was suitable for the patient cohort. The design had been presented, reviewed, checked and approved

through 6xrounds of user group meetings. Thereafter, the detailed technical design followed a series of submissions through the RDD process to validate that it met the agreed project requirements.

48. Why were suspended ceilings installed in Ward 2A?

A. Ceiling Type A, which is a suspended plasterboard ceiling supported on a concealed ceiling grid system (SHTM Category 1) was specified and installed in all the isolation room suites (bedroom, lobby and ensuite) within Ward 2A. Ceiling Type E, which was mineral-fibre tiles supported on an exposed grid system was specified in the remaining patient rooms within Ward 2A; Ceiling Type B, which was a moisture resistant mineral-fibre tile, was specified in the ensuites within Ward 2A. This aligned with the briefing of the room type as a standard patient room and was compliant with **SHTM 60 Ceilings**. There were no comments on the ceiling plans to suggest the ceiling type was incorrect. Suspended ceilings are compliant; a suspended ceiling is required to conceal the services installed within the ceiling void, which is a requirement to comply with healthcare IPC requirements.

In addition, I have also located an email correspondence between myself and Mairi Macleod whilst we were preparing the 1:50 Room Type Programme, 2010-04-29 - Macleod, Mairi - NSGH - 1-50 Room Type Programme which suggested 'most rooms in Haemato-onc will have the same layout as the general wards with the addition of the Hepa filter' **A52701398 - Email chain from Mairi Macleod to Emma White - NSGH - 1:50 Room Type Programme - Bundle 43, Volume 5, Page 160.**

RE: NSGH - 1:50 Room Type Programme

MM Macleod, Mairi [redacted]
To Emma White
Cc Wrath, Frances; Griffin, Heather; Moir, Peter; Mark Baird; david.bower[redacted]

Reply | Reply All | Forward | ...
Thu 29/04/2010 12:11

Hi Emma

Thanks for this. In response to your questions:

- we will include the general wards but not Haemato-oncology (most rooms in Haemat onc will have the same layout as the general wards with the addition of the Hepa filter)
- For children's will look at cardiology, acute receiving and general wards (Haemato-onc same as adults) and yes keep observation ward with ED
- We are comfortable with picking up main entrance areas in 2nd /3rd round meetings
- Again we are comfortable with picking these areas up in 2nd /3rd round meetings – if there is time during the first round of meetings we might look at some of the bigger areas eg gym
- Dermatology OPD will be picked up with main OPD
- Missing dept from children's we are comfortable with picking up in 2nd /3rd round meetings
- Again we are comfortable with picking these up in 2nd /3rd round meetings

Given that you think this plan is a "goer" we will look at re-doing the second round of meetings picking up the missing depts first

Kind regards

Mairi

49. Why were Chilled Beam Units installed in Ward 2A?

A. My understanding was that the mechanical performance requirements for the rooms in Ward 2A were initially led by the ADB briefing codes attributed to the department through the RDS process.

The client briefing SoA suggested the code B1802 - Single bedroom: Children/young people, with relatives overnight stay should be applied to all the bedrooms in the Schiehallion unit, including the Isolation Bedrooms; with code - G0507 - Lobby: gowning (isolation room) Entrance lobby for barrier nursing to be used for the Gowning Lobbies.

During the Template RDS stage, Tribal reviewed the SoA and ADB codes with the GGC team and attributed the code B1802C for the children's bedrooms and changed the bedrooms to the children's isolation suites to B1805C.

The ZBP M&E design progressed with the Template RDS revised brief, understanding that the bedrooms within the isolation suites should not have chilled beams. However, the M&E design for the non-isolation bedrooms progressed with an agreed RDS brief that the remainder are generic Children's Single Bedrooms. The generic bedrooms included within the M&E ventilation design the provision of chilled beams for cooling.

The M&E design was reviewed in M&E workshops, and the inclusion of the chilled beams was approved through the RDD process, therefore installed as a result.

50. Please confirm who approved the reflected ceiling plans for Ward 2A from the GGC Project team?

A. The 1:200 ceiling strategy plans confirming the proposed ceiling types were presented in Appendix K Technical review workshops to the GGC Project Team including their Technical Advisors Currie & Brown. The Appendix K Package was returned as approved on **A52701591 – BMCE - Transmit - 004047: Nightingale Drawings for Appendix K Returned with NHS/Brookfield Comments and Review Status - Bundle 43, Volume 5, Page 523**, with Ward 2A located on drawing NA-XX-02-PL-332-150 **(A52701440 - NSGH Second Floor Plan, Ceiling Finishes, Strategy Plan - 15 July 2010 – Bundle 43, Volume 4, Page 679)**. This was approved as

Status B with some comments; there were no comments on the Ward 2A proposed ceiling finishes/types. This was approved by Frances Wrath and Peter Moir from the GGC Project Team on or around 18th October 2010. Thereafter, during Stage 3 the detailed design for the 1:50 reflected ceiling plans was developed. The drawings were submitted under RDD and returned on Aconex-BMCE-TRANSMIT-016760 **(A52701438 - Mail from Glasgow DocControl - Brookfield Multiplex Construction Europe to Harinder Kaur and others - Final (WF-003737) RDD - First Submission - 332 series 1:50s RCPs PG10 Issued for Review - Reviewed- 11 July 2013 – Bundle 43, Volume 4, Page 672)** as approved as Status B on or around 8th July 2013 by David Hall, from Currie & Brown, who reviewed the M&E technical detailed design on behalf of GGC. The 1:200 ceiling strategy plans were also updated and re-issued under RDD to co-ordinate with the construction design. The Ward 2A drawings **A52701588 – Second Floor Plan, NCH Schiehallion Ward, Day case Unit, Anaesthetic Offices and Hospital at Night Ceiling Finishes - Strategy Plan - Bundle 43, Volume 5, Page 511** were returned on Aconex-BMCE-TRANSMIT-009650 **(A52701438 - Mail from Glasgow DocControl - Brookfield Multiplex Construction Europe to Harinder Kaur and others - Final (WF-003737) RDD - First Submission - 332 series 1:50s RCPs PG10 Issued for Review - Reviewed- 11 July 2013 – Bundle 43, Volume 4, Page 672)** as approved as Status B on or around 18th June 2012 by Frances Wrath from the GGC Project team. The comment was to change the ceiling type to the Chemo room to Type C, a concealed grid system, and review the ceiling detail to the play room.

51. As construction progressed on site, please confirm if any members of the GGC Project Team or Capita highlighted suspended ceilings as not suitable for use in a ward to accommodate immunocompromised patients?

A. I was not aware if any concerns were raised on the suitability of the ceilings specified by members of the GGC Project Team or Capita.

52. What was your understanding of the requisite air change rate required in accordance with SHTM guidance in respect of Ward 2A and 2B, and was this the air change rate achieved? If not, why not and who signed this off? What risk assessments were considered in respect of this decision?

A. I am not an engineer, and IBI were not the designers of the ventilation system. This was designed by ZBP the MEP consultant, and Mercury Engineering, the MEP subcontractor. As far as I was aware, the ventilation/air-change requirements stipulated under the RDSs and Employer's Requirements were being followed by the M&E design team. I do not know what air change rates were achieved, or if there were any risk assessments.

Isolation Rooms

53. Describe how the number and location of the isolation rooms was agreed? Who approved the final number and locations in the QEUH and RHC?

A. The isolation room designs were reviewed within the Department User Group they were located within. The 1:200 layouts including the location and size/shape of the isolation rooms were approved by the relevant department user group. For the Adult Hospital there was an additional Isolation Rooms Briefing Document shared with the Bidders. (NSGACL Adult Isolation Rooms_iss1_rev (090604 tender addendum_TAD-00018) **(A52701479 - NSGACL Update on the Isolation Rooms for the New South Glasgow (Adult) Hospital - undated – Bundle 43, Volume 4, Page 1167).** The Isolation Room locations would have initially followed the SoA briefing document, with amendments reviewed and agreed within the respective Department User Group meeting. The sign-off of the number, location and shape of the Isolation Rooms therefore took place within the Department User Groups meetings. Further detail on the design development of the isolation rooms in contained in my earlier narrative section **A.4** 1:200 Department Layout Plans - Isolation Rooms.

54. Who was responsible for producing the drawings and specification for isolation rooms; who approved these from the NHS GGC Project Team?

A. The Multiplex design team including subcontractors held a joint responsibility in line with their respective design disciplines. Tribal were responsible for the initial Template RDS, NA-IBI were responsible for developing the 1:200 designs and agreeing the department layouts with the users, and developing the 1:50 equipment layouts, including agreeing the 1:50 equipment layouts with the users. NA-IBI were also responsible for designing and specifying the

architectural part of the isolation rooms; the partitions, internal finishes including ceilings, and architectural fixtures and fittings. We were also responsible for coordinating the M&E design. ZBP and Mercury were responsible for the design and specification of all M&E engineering requirements of the isolation rooms, including the ventilation design.

55. What concerns, if any, did you have regarding isolation rooms and compliance with SHTM/SHPN? What action, if any, did you take in respect of any such concerns?

A. I was not aware of any non-compliances regarding the isolation rooms.

56. The Inquiry has reviewed RDS in excel format and note there is an entry under 'Design Notes' relating to Ward 2A isolation rooms, the entry states:

"WARNING NOTICE: This room is based on a theoretical design model; which has not been validated (see paragraph 1.8 of **A52701567 – HBN 04-01 Supplement 1 - Isolation facilities for infectious patients in acute settings 2013 - Bundle 43, Volume 5, Page 168.** Specialist advice should be sought on its design. The lamp repeat call from the bedroom is situated over the door outside the room."

a) Was this note entered on the RDS? If so, why and by whom?

A. This note was not added, it came directly from the standard ADB RDS. Paragraph 1.8 of HBN 4 Supplement 1 confirms as follows……. 1.8 The guidance on isolation suites in this supplement is based on a theoretical design model. The model will be validated in the near future, and the results published in a separate document. The aim of this supplement is to provide practical guidance on how to provide isolation facilities that are simple to use and meet the needs of the majority of patients on acute general wards.' The later version **HBN 04-01 S1 - Isolation rooms supplement** was published in 02/04/2013 after the design was approved. Paragraph 1.5 states as follows; 'The guidance on PPVL and negative pressure isolation suites in this document is based on a model that was validated by the Building Services Research and Information Association (BSRIA) and the University of Leeds.

The complete validation process and results obtained will be available from BSRIA (see link in References section).' I believe this is the validated model.

b) What specialist advice was sought relating to the design of these rooms?

A. There was no specialist consultant. ZBP were experienced healthcare specialist M&E designers and provided the ventilation design for these rooms.

c) What was the final agreed design for isolation rooms and who approved this?

A. The isolation room designs were reviewed initially within the Department User Group they were located within. The 1:200 layouts including the location and size/shape of the isolation rooms were approved by the relevant department user group. At the 1:50 stage, the equipment layouts were agreed, and the associated RDS were approved. The M&E design of the isolation rooms including the ventilation would have reviewed in the M&E Design Workshops, which NA-IBI did not attend.

57. Why was the main extract placed in the patient's bedroom and not the ensuite as outlined in SHPN 04 Supplement 01? Why was this change requested, who requested this change and who approved this from the NHS GGC Project Team?

A. I was not aware of this design deviation, and do not know who approved this change. IBI would have been provided the ceiling mounted equipment model file from the M&E team (ZBP and Mercury), and we would have indicated the co-ordinated location on the 1:50 Reflected Ceiling Plan (RCP). The M&E detailed design, and co-ordinated RCP were issued to the NHS project team for review and comment/approval under the agreed RDD contractual process.

58. Was IBI aware of the exclusion in HBN 4 Supplement 1. that states:

A. **“EXCLUSIONS**

This supplement does not describe the specialist facilities required in infectious disease units or on wards where severely immuno-compromised patients are nursed. Guidance for these facilities will follow in a further supplement to HBN 4.

IBI were aware of the full set of HBN guidance documents current at the time of the design. I have found no record of the further supplement referenced in our Guidance and Reference Documents Folder within our project records. Whilst this is referenced in the HBN 4 Supplement, the ‘further’ supplement is not listed in the Employer’s Requirements, Clinical Output Specification, or in the list of current documents at the time of design. I am aware of the 2024 published guidance document Health Building Note 04-01 Supplement 1: Special ventilated isolation facilities for patients in acute settings **(Please refer to Bundle 02, Document 11, Page 859**). This now provides design guidance for immunocompromised patients, listed as one of the Main changes since the previous edition (refer to page iv).

59. Why were PPVL rooms proposed and built for Ward 2A BMT patients?

A. The Schedule of Accommodation (SoA) brief (**A52701488 – NCH SoA Version 4 Design for Stage 2 Bundle 43, Volume 4, Page 1186**) was to provide 8 of the single bedrooms with air lock lobbies. The Stage 2 SoA confirmed the ADB room briefing codes on the Schiehallion ‘tab’ of the excel NCH SoA ER With ADB Codes.

	A	B	C	D	E	F
1	**SCHIEHALLION WARD (22 BEDS)**					
2	**Description**	**Qty**	**Unit Area m²**	**Total Area m²**	**ADB CODE**	**Comments**
3	**Bed Area**					
4	Single bedroom: Children/young people, with relatives overnight stay	21	16.5	346.5	B1802	
5	Lobby: air lock to bedroom	8	7.0	56.0	G0507	
6	Shower, WC & wash: accessible, wheelchair assisted	21	4.5	94.5	V1610	As per HBN 00-02
	Office Area with workstations (x4)	1	18.0	18.0	M0115	

From my research on the history of the user group comments, the PPVL isolation rooms were moved to the BMT area of the ward following comments in UGM1. The bid design had the 8 PPVL isolation rooms spread across the whole ward.

Please refer to Chapter A.4 Stage 2 Design describing the 1:200 Department Layout Plans which summarises the design development within the Schiehallion User Meeting and the associated Isolation Rooms.

Thereafter, the briefing of the Isolation Rooms progressed through the RDS process, including the development of the 1:50 Room Types and the environmental data schedule reviews.

Water and taps

60. Describe IBI involvement, if any, in respect of the decision to use Horne taps.

A. This change originated with the NHS-PMI 173 - A&C Hospitals - Sensor Taps_26-06-2012 **(A52701432 - NSGH - Project Management Instruction Report 173 - A&C Hospitals - Sensor Taps - 22 June 2012 – Bundle 43, Volume 4, Page 665).** 'The Board advise BMCL that they require all taps to be non-sensor with the exception of those taps previously identified to meet the BREEAM criteria.' NA-IBI raised an EWN NA-EWN-000165 on 12 July 2012 and noted a series of non-compliances for this proposal – various SHTM/HBN guidance requires sensor taps in a number of clinical locations. I was familiar with this tap from its use on Peterborough City Hospital.

a) What concerns, if any, did you have regarding the use of Horne taps?

A. Horne taps had been used at our preceding major hospital project at Peterborough. I was not aware of any issues with the taps at Peterborough. However, our colleagues in Wales had encountered some issues with the tap and we notified BM on or around 24 September 2012 about our concerns in an RFI (NA-RFI-000365) to BM who in turn raised this with the NHS-GGC. 'NA (Cardiff) are currently working on Health Vision Swansea (large outpatients hospital). The Health Board there changed all the taps to the Horne mixer tap (same as NSGH). We understand that this type of tap has now been prohibited for use in Wales. We understand that the insides of the tap are rough cast rather than machine cast which leads to infection control

issues. All Welsh Health Boards have now had a tap demonstration from Ideal Standard and they feel that the sensor taps are now safer to use.'

b) What risk assessments were carried out in respect of the use of Horne taps?

A. I am unaware if any risk assessments were carried out.

c) Who was involved in, and who signed off the use of Horne taps?

A. The non-sensor tap alternatives were reviewed in detail between BM, NHS GGC and Currie & Brown. NA-IBI were advised of the decision to proceed with the Horne tap on or around 3 August 2012 via **A52701568 – Aconex Contractor's Advice - Fwd: Clinical WHB's and Taps - Bundle 43, Volume 5, Page 168.** Thereafter, NA-IBI updated the N13 specification to reflect the requested change to Horne taps. BM provided the datasheets, and the combined documentation was submitted to the NHS under the RDD process for review and approval. Frances Wrath approved the datasheets on behalf of the NHS. However, the sign-off of the use of Horne taps had already taken place at the stage.

d) Did you attend the meeting regarding the use of Horne taps in 2014? If so, why was the decision made to proceed with Horne taps?

A. No, I am unaware of the meeting. My understanding from reviewing the history was the change from sensor taps was requested by the NHS GGC. As noted above, IBI notified BM on or around 24 September 2012 on potential issues with the Horne tap. BM reconfirmed the decision to proceed with Horne taps on or around 3 August 2012 via **A52701568 – Aconex Contractor's Advice - Fwd: Clinical WHB's and Taps - Bundle 43, Volume 5, Page 168.**

e) Did the use of Horne Taps depend on thermal disinfection? If so why, if not, why not? What action, if any, was taken regarding this, and your involvement, if any.

A. I have located and make reference to the latest Horne Tap installation and maintenance manual **A52701572 – Horne OPTITHERM Thermostatic Bib Tap Type TBT-03 Instructions - Bundle 43, Volume 5, Page 198.** '5.2.1 Horne recommends periodic thermal disinfection in conjunction with high velocity flushing, using the Water Quality Compliance Kit (part no.6006), or the Inline Thermal Disinfection Unit (ILTDU). See paragraphs 2.3 and 2.4 for instructions on flushing. The periodicity of this maintenance should be determined in conjunction with the current best practice.' I was not involved, and do not know what procedures were in place at the time of the Horne Tap installation, but would expect any maintenance requirements, including thermal disinfection to be part of the 'As Built' documentation provided by the subcontractors for inclusion in the O&M manuals.

Commissioning and Validation

61. In respect of commissioning and validation, please confirm the following:

a) Describe your role in the lead up to commissioning. What action, if any, did you take to ensure that the wards within RHC and the QEUH met the guidance requirements of SHTM.

A. I was not involved on the project on day-to-day basis during the commissioning. IBI had no involvement with the commissioning process between BM and the NHS. We had responsibilities to visit site and update our drawings to represent final design/construction 'as built' documentation for inclusion in the O&M manuals. We were issued Site Inspection Packs from BM, including their Quality Management Sign Off Sheets. With respect to the wards within RHC and the QEUH, our actions were the same as it was for all the departments. We attended site inspection visits to review and check the build and installation on site was aligned with the approved design. This was limited to the architectural packages and scope.

b) Describe what commissioning of the water and ventilation system took place prior to handover, and your involvement, if any.

A. IBI had no involvement in the commissioning of the water and ventilation system. Multiplex provided the Design Team with updates of the agreed Commissioning Programme. Refer to Aconex dated 12 December 2014, **A52701576 – Aconex Commissioning Programme Update - Week 257 - Bundle 43, Volume 5, Page 351.**

c) Who was responsible for ensuring that commissioning of the water and ventilation system was carried out, and who signed off that it had been carried out?

A. The Main Contractor Brookfield/Multiplex were responsible for the agreed commissioning associated the building handover. NHS GGC were responsible for fulfilling their own commissioning requirements. There was a project 'Joint Commissioning Group' which was formed of NHS GGC and Multiplex. IBI were not party to the details of the final arrangements, however we were aware of additional specialist validations such as Pharmacy, CSSD/Decontamination and MRI.

62. The Inquiry understands that NHS GGC decided to forgo the requirement to have an independent commissioning engineer. Who made this decision? What was the rationale was behind this decision? What was the impact, if any, of this decision? In hindsight, do you think that it was the correct decision?

A. IBI had no involvement in this decision. I have managed to locate limited copies of the Project Steering Group meeting minutes notes. IBI, through Neil Murphy (Project Director) attended a limited number of these meetings. **DRAFT 27072010 - Action Note – PSG**. Item 2 Project Supervisor **A52701574 – Project Steering Group - Action Note - Bundle 43, Volume 5, Page 245** 'AS advised that Capita Symonds, the Board's Project Supervisor, have provided their first report noting that the site is working well. In future a summary from this report will be added to the Monthly Progress Report and for discussion at this meeting. PS confirmed that an introductory meeting between BCL and Capita Symonds has taken place and enquired as to whether Capita would be fulfilling an 'Independent Certifier' role. RB

noted that the Capita role would be extended beyond the traditional Independent Certifier role. PM agreed to send PS the Capita appointment documents which will outline their brief.' AS being Alan Seabourne; PM being Peter Moir; PS Paul Serkis and RB Ross Ballingall. Considering the issues with water and ventilation post-handover, an independent commissioning engineer could have identified some of issues during the commissioning period and certainly provided an independent opinion on the construction quality and commissioning process.

63. Was the energy centre commissioned prior to NHS GGC taking occupation of QEUH? If so, describe what you know about the commissioning of the energy centre. Provide details of the intricacies in relation to its completion.

A. Yes, the Energy Centre was required to be completed to allow the Labs Building to be handed over as per the client requirements. It was designed to be in 2 phases. Side A of the Energy Centre was to be handed over in 2013.

Handover

64. Describe your role in the lead up to NHS GGC accepting handover.

A. I was not involved on the project on day-to-day basis during the time in the lead up to the NHS GGC accepting handover. IBI had no direct involvement with the commissioning and handover process between BM and the NHS. We had responsibilities to visit site and update our drawings to represent final design/construction 'as built' documentation for inclusion in the O&M manuals. I have located through our records that IBI commenced discussions with Multiplex on or around May 2013 on the 'As Built' process, and a proposed drawing list for agreement was shared with BM **A52701559 – NSGH As Built Drawing Schedule - Bundle 43, Volume 5, Page 140.** Further discussions took place to agree a process involving Multiplex, their Subcontractors, Quality Managers, Capita, NHS, Mercury and IBI.

Please refer to Chapter 6.10 Handover and Site Inspections for further information.

a) At the point of handover, how satisfied were you that all areas of QEUH/RHC accepted by NHS GGC, were designed to the intended specification and suitable for the intended patient cohort, meeting all the relevant guidance requirements?

A. Whilst I was not heavily involved in the project at the point of handover, I was satisfied that at this point the design had been through a robust design review process, including extensive user engagement, and that as a result that the design was suitable for the patient cohort. The design had been presented, reviewed, checked and approved through 6xrounds of user group meetings. Thereafter, the detailed technical design followed a series of submissions through the RDD process to validate that it met the agreed project requirements.

b) How were you assured that the wards met the requirements of the specific patient cohorts?

A. I was assured through the robust design review process, including extensive user engagement. The technical design was also presented to the client and submitted for review and approval following the agreed RDD contractual arrangements.

c) Were any wards not handed over, or only partially handed over, please confirm. If so, why they were they held back?

A. During the NHS commissioning period in July 2015 (prior to patient occupation), GGHB raised the issue that patient rooms in Ward 4B were not achieving the required 5-10 pascals differential pressure. This issue affected the 24 bedrooms within the haemato-oncology ward on Level 4. This ward has held back until remediation work was agreed between BM and GGC NHS, completed, recommissioned and handed over

65. The Inquiry understands that no validation was carried out in respect of the ventilation system of QEUH/RHC prior to handover. When did IBI become aware of this? How did handover come to be accepted without the ventilation system being validated? Who was responsible for this and who signed off on this?

A. IBI had no direct involvement with the agreed commissioning and validation process for the ventilation system. We had responsibilities to visit site and update our drawings to represent final design/construction 'as built' documentation for inclusion in the O&M manuals. I have only been made aware of this issue through the claim and public inquiry and thus am unaware who was responsible for this decision.

STATEMENT OF TRUTH

I declare that to the best of my knowledge and belief, the matters stated in this witness statement are true.

Signed:

Date:

The witness was provided the following Scottish Hospital Inquiry documents for reference when they completed their questionnaire statement.

Appendix A

A47851278 - Scottish Hospitals Inquiry - Hearing Commencing 19 August 2024 - Bundle 16 - Ventilation PPP (External Version)

A35780880 - 10.0 PEP

A34099838 - 06. 120310 RDS Development Process Rev F

Appendix B

Appendix C

CV of Emma White

ARCADIS

Emma White

Architect - Principal

BA (HONS) ARCH, BARCH, RIBA PART III, ARB

Key Information

Arcadis Position

Architect - Principal

Education/Qualifications

- RIBA Part 3, South Bank University, London, UK, 2000
- BArch, University of Liverpool, Liverpool, UK, 1998
- BA (Hons) Arch, University of Liverpool, Liverpool, UK, 1995

Memberships

- Royal Institute of British Architects (RIBA)
- Architects Registration Board, UK, (ARB), Registered Architect

Experience

30 years

A qualified architect, Emma is a specialist in healthcare design having attained her in-depth knowledge by working on some of the largest health schemes in the UK and Canada and has been responsible for the successful delivery of projects totalling over £1billion. Her experience at the successful set-up and delivery of these large scale projects has led to her responsiblities broadening within Arcadis to include a UK practice wide role overseeing QA and Process Improvement (associated with Project Delivery and Resource Management).

She has an in-depth knowledge and experience at managing large teams in the design and construction of healthcare facilities, and a considerable expertise in the development and implementation of design processes, schedules and protocols to assist in the management, programming and co-ordination of projects.

Emma is a confident leader, successfully managing complex supply chain and stakeholder groups. She proved this when, as Project Director she led the design team to deliver the Peterborough City Hospital project three months early, achieving an excellent relationship with the client and contractor.

Her ability to project manage the design and delivery of multifaceted, large scale schemes, has seen Emma's involvement in the high profile [redacted] and Royal Hospital for Children Glasgow project. Her incremental learning curve through healthcare architecture has provided her with a breadth and depth of experience that is applied to all projects she is involved with. Focused on programme, budget and design excellence, she will always strive to deliver cutting-edge healthcare facilities.

Relevant Experience

HEALTHCARE

Oriel, London, 2020-2027. *Project Director/Lead*
Bouygues UK / Moorfields Eye Hospital NHS Foundation Trust - [redacted]

Contractor's delivery architect for a brand new integrated eye, education and research centre for a joint initiative between Moorfields Eye Hospital NHS Foundation Trust, the UCL Institute of Ophthalmology and Moorfields Eye Charity (NHP/NEC4)

North Middlesex University Hospital; Mixed-Use Masterplan, 2019-2023.
Project Manager
North Middlesex University Hospital NHS Trust - [redacted]

A joint masterplan for NMUH & the Greater London Authority setting out a vision to transform the hospital to an integrated wellness community with 250+ housing units, pedestrian links and public realm design. The design integrates the Urban Land Institute's Healthy Places Principles.

Key Skills

- Project management of highly complex design deliverables
- Consultant/Contractor liaison
- Client/ end user interface
- Risk Management
- Performance Management
- Programming
- Production information coordination
- Outsource Management

Training

- 'ProCure22' e-training, 2019
- CSCS Construction Skills, Professionally Qualified Person, 2017
- IOSH Working Safely, 2012
- Construction (Design & Management) Regulations, Systems for Safety, 2011
- WRAP Training, 2010
- Performance Management, 2010
- MicroStation Master Class, 2008

St Paul's Hospital, Vancouver, BC, Canada

University College London Hospital; Dental Education Centre Relocation, 2018-2019. Project Manager

University College London Hospitals NHS Foundation Trust - [redacted]

Due to building redevelopment, UCLH's Dental Education Centre was to relocate into an existing office building. This refurbishment project challenged the designers to fit necessary accommodation, such as dental clinical teaching rooms and dental skills training rooms, into reduced 343m2 footprint. (UCLH Framework).

Guy's and St Thomas' Hospital; Orthopaedic Centre of Excellence Concept, 2018-2022. Project Manager Guys and St. Thomas NHS Foundation Trust - [redacted]

Working alongside both the Trust and a private provider to develop and build 8 new

state-of-the-art orthopaedic theatres and associated support facilities, including a ground floor outpatients department. Designed to Stage 3.

Royal Bournemouth Hospital; Women, Children & Emergency Centre, 2018-2024. Project Manager

IHP / University Hospitals Dorset NHS Foundation Trust - [redacted]

Subsequent to producing the Trust's masterplan, Arcadis was appointed to design a 27,200m2 new build women, children and emergency centre, including urgent and ambulatory care, planned to improve the patient experience (P22/ NEC).

St Paul's Hospital Major Acute & Research Development, Vancouver, Canada, 2014-Ongoing. Project Manager

Providence Health Care - [redacted]

As the flagship facility of Providence Health Care, the new St. Paul's Hospital will enable a transformational shift from a traditional acute care-centred model to a primary and community care model, across the health continuum. Arcadis has produced an indicative design for the new 130,000m^2 Acute hospital, which will support the Business Plan submission to the Ministry.

BMC Khartoum (Al Bushara Hospital), Sudan, 2016. Project Manager

Tekno Consultancy Co Ltd - [redacted]

Originally designed as a Military Hospital, with a completely built existing concrete frame, Arcadis has re-zoned the building to include a Teaching Hospital, a Medical/Nursing School; a 100-bed Hotel and Retail Facilities.

Chase Farm Hospital, London; Major Redevelopment, 2015-2018. Director

Royal Free London NHS Foundation Trust - [redacted]

Masterplan through to delivery in less than four years of a major hospital redevelopment on existing site part funded by land sale. Includes innovative four table 'Barn' operating theatre and is designed to be one of the most digitally advanced hospitals in the UK (P21+/NEC). Director

in charge of internal 1:50 detailed design.

Birmingham Women's Hospital; VITA Concept; 2015. Project Director Kier Construction Scotland / Birmingham Women's and Children's NHS Foundation Trust - [redacted]

A whole service transformation to redevelop the existing site to create a national centre of excellence. The design adopts a LEAN approach to provide the most supportive, patient-focused physical environment possible. Feasibility consultancy work leading on to OBC (P21+).

Chaguanas Health Centre, Trinidad and Tobago, Caribbean, 2015-2017. Project Manager National Insurance Property Development Company - [redacted]

New acute health centre offering local residents an improved fit-for-purpose health service. Working within the limitations imposed by a hot climate, the design aims be clinically efficient and environmentally sustainable.

Ayrshire Central Hospital, Irvine; Woodland View, 2013-2016. Project Director NHS Ayrshire and Arran - [redacted]

A new 206-bed mental health and community services building, providing support to adult acute and elderly patients who need a certain level of care and rehabilitation. The flexible

Career

- 2022-Present, Arcadis
- 2010-2022, IBI Group (UK) Ltd
- 2000-2010, Nightingale Associates
- 2000, Littman Goddard Hogarth
- 1998–2000, Devereux Architects
- 1997, Porte Rush Limited
- 1995–1996, Cochrane McGregor Group Limited

Oriel, London

design supports patient recovery, confidence and choice leading up to the transition home, including therapy & exercise gardens, dementia courtyards and external wander-loops (NPD). Project Director (Site Delivery Stage).

Peterborough City Hospital; Radiotherapy Day Treatment Unit, 2015. Project Director

Brookfield Multiplex / North West Anglia NHS Foundation Trust - [redacted]

A feasibility and design solution to meet increasing patient demand in radiotherapy services, including two new Linear accelerator bunkers, consultation rooms, larger waiting area, independent entrance for weekend services, doubling the capacity.

Glasgow Institute of Neurological Science (INS); Entrance Redesign, 2015-2016. Project Director

Brookfield Multiplex / NHS Greater Glasgow & Clyde - [redacted]

The modernisation of the entrance to a historic neuroscience building, including a welcoming double height reception, waiting area and café on the ground floor. The café provides an oasis from the hustle and bustle of the active hospital.

Queen Elizabeth University Hospital, Glasgow, 2009-2015. Project Manager Multiplex / NHS Greater Glasgow & Clyde - [redacted]

Masterplan and delivery of a 170,000m^2 'super hospital', one of the most advanced medical campuses in Europe. Combining four health boards into a combined acute and children's facility. Delivered five weeks ahead of schedule and achieved BREEAM Excellent (NEC).

St James' Children's Hospital Dublin; Design Competition Concept, Ireland, 2014. Project Manager

Brookfield Multiplex - £350m

Concept for a world-class facility providing secondary and specialist paediatric services. Wards are a dynamic environment for healing, catering for the seven ages of children, they use technology to ensure each patient's space is age appropriate. The design is supported by a landscaped oasis for escape, contemplation and play. Application of LEAN principles.

Mullingar Hospital (HSE), Ireland; Theatre Upgrade, 2014-2015. Project Manager

Health Service Executive (HSE) - [redacted]

Design of a new extension, refurbish and upgrade theatres to optimise new clinical flows while improving the existing flows in clinical, public, private and FRM terms.

North Tees & Hartlepool New Hospital; PFI (bid only), 2012-2013. Project Director

Brookfield Multiplex / North Tees and Hartlepool NHS Foundation Trust - £300m

A major new build 80,000m^2 PFI acute hospital on a greenfield site, comprising 650-single beds with additional maternity hospital. Designed to minimize travel distances and maximize views and daylight into bedrooms. The scheme will rationalise the acute services at the two hospitals. Project Director responsible for managing the design team and bid deliverables, co-ordinating our bid approach and ensuring a full response to the client's brief was achieved.

BC Children's and Women's Health Centre, Vancouver, Canada; P3 Redevelopment Bid, 2013–2014. Project Manager

Partnership British Columbia - £220m

Concept design of a hospital to be built within the overall health campus to accommodate the increasing volume of critically ill women and children and enhance the clinical education and research environment. Featuring spacious private rooms for patients and family members. A very tight site together with a very strict brief in terms of adjacencies and

travel distances ensured a very compact plan form evolved out of the dialogue sessions.

Peterborough City Hospital; PFI Development, 2004-2010. Project Director

Brookfield Multiplex / North West Anglia NHS Foundation Trust - £250m

Masterplanning and delivery of a 612-bed adult acute hospital, a 250-bed women and children's hospital and a 98-bed mental health unit on one site, and a 40-bed integrated care centre in the City centre. Completed 3 months

ahead of schedule, this award winning development achieved a BREEAM Excellent rating.

West Middlesex University Hospital;

PFI Development, 1998-2004.

Team Leader/ Project Architect

West Middlesex University Hospital

NHS Trust - £53m

A 4-storey acute hospital comprising new build and refurbished clinical and diagnostic services. Includes A&E, a critical care, operating theatre, outpatients and 180-bed inpatient wards. Phasing and decant reduced risk and helped deliver the hospital ahead of programme. Team Leader/Project Architect responsible for the site delivery of the project.

West Middlesex University Hospital; T-Block Mental Health Unit, 20012003.

Team Leader

Bouygues UK / West Middlesex University Hospital NHS Trust - £3.7m

Refurbishment and new build extension of an existing Victorian building, including bridge link to create new adult and elderly mental health wards. Project Designer responsible for production information and client/ contractor interface. Team Leader position when she took over the main new building.

Victoria Hospital; Leigh House, 2000.

Architectural Assistant

Victoria Hospital - £3m

New children's and adolescent mental health unit on a sensitive rural site, East of Winchester. Won Building Better Healthcare award for Excellence in the Design of Mental Health Accommodation.

Architectural Assistant responsible for production packages.

Hillingdon Riverside Centre; Mental Health Unit, 2000.

Architectural Assistant

Central and North West London NHS Foundation Trust - £5m

New build Mental Health Unit. Traditional Contract. Architectural Assistant responsible for production packages.

Queen Mary's Hospital Sidcup; E-Block, 2000.

Architectural Assistant

Oxleas NHS Foundation Trust - £4m

Refurbishment scheme, converting an existing block into a new mental health facility. Design and Build Contract. Architectural Assistant responsible for production packages.

SCIENCE

National Satellite Testing Facility (NSTF) Harwell, 2017-2023. Project Manager

MACE Limited / Science and Technology Facilities Council - [redacted]

A world-class cleanroom type test facility, comprising six large chambers to replicate the extreme conditions a satellite will encounter in deep space, from launch to landing. Includes the precision design of two complex buildings, which form an extension the existing 'RAL Space R100' structure (NEC3)

Rosalind Franklin Institute Harwell, 2017-2021. Project Manager

Mace / Science and Technology Facilities Council - [redacted]

A JV for ten top Universities, this biomedical centre of excellence embraces new techniques and disruptive technologies to accelerate the discovery of treatments for chronic conditions. The design fosters collaboration and social interaction, whilst intelligently enabling the functionality of this unique experimental laboratory (NEC3).

COMMERCIAL

Warehouse/Office Development. Architectural Assistant [redacted]

Refurbishment of a Victorian warehouse in East London to create new offices for an internet-based company. Architectural Assistant responsible for production packages.

LEISURE

Leisure Development. Architectural Assistant

Porte Rush - [redacted]

Entrance Canopy and glazed entrance modules for "The Mast" Leisure Development, Surrey Quays. Concept Designer for Porte Rush (Subcontractor).

Acute and elderly mental health unit.

RESIDENTIAL

Housing Schemes. Architect [redacted]

Small scale residential extensions, including a basement conversion in the conservation area of Oxford, and loft conversion/kitchen extension in Clapham, London. Project Architect responsible for design, and liaison with the client and local authority to obtain planning permission.