Scottish Hospitals Inquiry

Witness Statement of

Darren Forbes

Witness Details

1. **Name**: Darren Forbes.

Professional Background

2. I am a Senior Project Manager at what was Imtech Engineering Services Central Limited, since renamed to Dalkia Engineering Limited ("Imtech"). I have c.20 years of experience in the construction industry. I make this statement on behalf of Imtech from my own knowledge and from information provided to me by others working at Imtech. I am a Building Services engineer and qualified with a Higher National Diploma in Building Services Engineering in 2006 from Liverpool Community College whilst working for Haden Young Ltd (part of the Balfour Beatty group).

3. Following my time with the Balfour Beatty group, I have been employed at Imtech since November 2018.

4. As a Senior Project Manager, I possess experience in engineering and contracting, with previous success in delivering and managing complex projects from construction through to steady state operations (time between construction completion and operational usage).

Role in the Project

5. In my role on the Royal Hospital Children & Young People and Department of Clinical Neurosciences, Little France, Edinburgh ("RHCYP & DCN") project (the "Project"), I acted as the on-site Senior Project Manager for Imtech, which was contracted to address the NHS's HVC 107 (ventilation works). My responsibilities included liaising with various parties, including the NHS and IHS Lothian, as well as both sets of advisors (Mott MacDonald who were technical advisors to the NHS and Faithful & Gould who were the Project Managers on behalf of George Street Asset Management). Additionally, I managed the day to day running of the project and attended weekly Technical Meetings with NHS and its advisors, and Hoare Lea and held throughout the Project, along with the meetings for the Monthly Project Review. I was also involved in the Health & Safety Reviews/Audits carried out on our on-site activities, and I was based with my colleague Dominic Gallagher, who was the project director in the George Street Asset Management (as I understand it this was a special purpose vehicle for management of the Project) offices and on site.

Background/Context of Imtech's Appointment

6. The Regional Director at Imtech, Dave Keenan (who left the company in/around August 2022) was phoned by Matt Templeton, Director at Dalmore Capital (Owners/Investors of the RHCYP & DCN) to see if Imtech could provide "enhancements to the system". I understand that Dave Keenan and Matt Templeton had previously worked together on another project in the UK. I understand the first call on this new project was in/around October 2019. I also understand that the call was made in the context that Imtech had been through a competitive tendering process in order to be appointed to the Scottish Health Framework, which included pre-agreed rates and prices. I understand that these were applied to Imtech's work on the Project.

7. Dave Keenan then met with Matt Templeton at the Offices of Dalmore Capital in Edinburgh (Matt Templeton is also a Director of IHS Lothian (Integrated Health Solutions, Lothian) a Special Purpose Vehicle for RHCYP & DCN, under Scottish NPD PPP (Non-profit distributing public private partnerships). This initial meeting was followed up by a further meeting with Matt Templeton and Dave Keenan and Emma Fradgley (Business Development at Imtech Scotland, who left the company in/around June 2021). At both meetings Dave Keenan confirmed Imtech's interest in carrying out these "enhancements to the system". Whilst I did not attend these meetings, Dave Keenan made me aware of them.

8. My understanding is that Imtech was brought on board following issues having been identified in the project as at Q4 2019. It is my understanding that Imtech was part of the solution regarding the points identified and, as a result of its works, that Imtech delivered in compliance with its contractual arrangements.

Brief and Instruction

9. Following on from the meetings referred to above, IHS Lothian subsequently confirmed its instruction to Imtech to design, manufacture, supply, construct, test, commission ventilation systems that would achieve 10 air changes per hour @ +10pascals positive to the neighbouring space, in rooms with Critical Care and Haematology & Oncology. Imtech started on several letters of intent and then IHS Lothian Limited issued to Imtech an initial engagement letter dated 20 December 2019 (which is exhibit DF1 of this statement) **(A35055578 – Subcontract Initial Engagement Agreement Letter dated 20 December 2019 - Bundle 13, Volume 4 – Page 926)** which states the ventilation works as, "*the design, construction, completion and commissioning, of ventilation works to the paediatric critical care ventilation system and the haematology/oncology ventilation system pursuant to the Board's technical requirements detailed in the change notice HVC 107, and as further described in other Documents*".

10. Subsequently, IHS Lothian and Imtech entered into a contract dated 5 August 2020 (the "Ventilation Works Contract"), which states the works within the contract data part one as "*Design, construction and installation, testing, commissioning and completion of new ventilation system and associated works to serve Paediatric Critical Care and Haematology and Oncology areas on the 1st and 3rd floors respectively as further described in the scope"* (exhibit DF2) **(A35680505 – SA4 Works – SA4 Works Contract (Envelope 2) - Signed and Delivered 05.02.21 - Bundle 13, Volume 4 – Page 834).** Both the engagement letter and the Ventilation Works Contract contained NHS Lothian document HVC 107.

11. The brief for what Imtech were to do was as detailed in HVC 107 and Imtech was instructed via IHS Lothian as explained above. The HVC 107 document was initially a change document issued by NHS Lothian to IHS Lothian (signed by Brian Currie of NHS Lothian). This document detailed the high value change requirements which included reference to a ventilation system or systems, which delivered 10 air changes per hour at +10pascals positive to the neighbouring space and was incorporated into the Ventilation Works Contract and subcontract initial engagement letter between IHS Lothian and Imtech (signed by Matt Templeton of IHS Lothian) **(A35055578 – Subcontract Initial Engagement Agreement Letter dated 20 December 2019 - Bundle 13, Volume 4 – Page 926)**.

12. The entity involved in providing the brief to Imtech was IHS Lothian and the individual was Matt Templeton. Imtech had no contact or involvement at this stage with the technical advisors (Mott MacDonald and Faithful & Gould) who were involved in the creation of the project brief as detailed in HVC 107.

13. In addition, and separate to the above Ventilation Works Contract, Imtech was subsequently asked to carry out various other enhancement works. As part of this, there were a number of requests for additional work for the NHS to "future proof" the hospital by enhancing the fire system etc. and these were carried out in parallel to the HVC 107 works.

These additional works were carried out under a separate contract dated 2 February 2021 titled “Agreement for MVC Works, based on the NEC 4 ECC Option E and Additional Conditions of Contract (Option Z) (see at exhibit DF3) **(A35680505 - SA4 works – SA4 Works Contract (Envelope 2) – Signed and Delivered 05.02.21 - Bundle 13, Volume 4 – Page 834)** for the following summarised scope:

LVC 133, Feasibility Study, HCID Suite within Emergency Department of RHCYP & DCN

- The purpose of this was to conduct a feasibility study for the establishment, within the Emergency Department of RHCYP & DCN, of an area for safe treatment of patients with a suspected or confirmed High Consequence Infectious Disease (HCID) including a safe donning and doffing room, a patient bed/treatment room and an en-suite bathroom all with interconnecting doors.

MVC 112, Design, Installation and Commissioning – Enhancements to Fire Safety DCN Only

- Install Combined Smoke & Fire Dampers at existing vent terminal in corridors.
- Install Combined Smoke & Fire Dampers in ductwork traversing room to room boundaries.
- Upgrade all doors to Fire Doors to corridors serving sleeping accommodation, in accordance with SHTM 81 and the Building Standards Technical Handbook: non-domestic, including the installation of intumescent strip and cold smoke seals and full certification by an approved installer.
- Install mechanical self-closing device to doors and half leaf doors to corridor within sleeping accommodation areas.
- Install electromechanical, free swing and linked to fire alarm system, self-closing device to doors and half leaf doors to corridor within sleeping accommodation.

- Upgrade existing walls between rooms and corridors, and room to room to “short duration” as per Non-Domestic Technical Handbook.
- Update Fire Strategy.

MVC 126, Installation & Commissioning – Fire Enhancements (FE) – RHCYP Only

- Install Combined Smoke & Fire Dampers at existing vent terminal in corridors.
- Install Combined Smoke & Fire Dampers in ductwork traversing room to room boundaries.
- Upgrade all doors to corridors serving sleeping accommodation.
- Install mechanical self-closing device to doors and half leaf doors to corridors within sleeping accommodation areas.
- Install electromechanical free swing and linked to fire alarm system self-closing device to doors and half leaf doors to corridors within sleeping accommodation areas.
- Upgrade existing walls between rooms and corridors and room to room “Short Duration” as per Non-Domestic Technical Handbook.
- Update Fire Strategy.

MVC 127, Alterations to CAMHS

- Upgrade all doors to corridors serving sleeping accommodation.
- Installation test & commissioning of Safehinge Doors to all bedrooms.

MVC 131, Fire Enhancement to CAMHS

- Install Combined Smoke & Fire Dampers at existing vent terminal in corridors.
- Install Combined Smoke & Fire Dampers in ductwork traversing room to room boundaries.
- Upgrade all doors to corridors serving sleeping accommodation.
- Install mechanical self-closing device to doors and half leaf doors to corridors within sleeping accommodation areas.

- Install electromechanical free swing and linked to fire alarm system self-closing device to doors and half leaf doors to corridors within sleeping accommodation areas.
- Upgrade existing walls between rooms and corridors and room to room “Short Duration” as per Non-Domestic Technical Handbook.
- Update Fire Strategy.

MVC 157, Emergency Department Alterations for High Consequence Infectious Disease (HCID Works)

- Alter ventilation to create balanced or slightly negative pressure cascade in various rooms.
- Alter ventilation to create positive pressure cascade in various rooms.
- Create rooms from various existing treatment bays.
- Alterations to facilitate safe patient pathways.

MVC 164, Fire Enhancements – Critical Care & Lochranza

- Install Combined Smoke & Fire Dampers at existing vent terminal in corridors.
- Install Combined Smoke & Fire Dampers in ductwork traversing room to room boundaries.
- Upgrade all doors to corridors serving sleeping accommodation.
- Install mechanical self-closing device to doors and half leaf doors to corridors within sleeping accommodation areas.
- Install electromechanical free swing and linked to fire alarm system self-closing device to doors and half leaf doors to corridors within sleeping accommodation areas.
- Upgrade existing walls between rooms and corridors and room to room “Short Duration” as per Non-Domestic Technical Handbook.
- Update Fire Strategy.

Works Undertaken

14. The works associated with HVC 107 have been instructed via a functional specification from the NHS which at its core is HVC 107. The construction element of HVC 107 called for the "*design, manufacture, supply, construct, test, commission and complete".*

15. To satisfy this functional specification a number of activities had to be undertaken:

Early Works/Surveys of existing systems / building

- in terms of early works, the first thing we undertook was a survey of the existing building. We tend not to rely on as-built drawings nor upon existing systems/building structure.
- Imtech's designers, Hoare Lea, toured the building verifying both plant installed and physical aspects of the building, e.g. making sure a duct run from one location to another could be incorporated, including available space. The survey work carried out by Hoare Lea included:
  - 3D photographic survey of the building interior.
  - Above ceiling inspections to verify physical aspects of the space.
  - Verification of existing systems in all areas, including plant rooms and above ceiling spaces.
- All of the above information was then used to create our downtakings drawings.

Technical Meetings

- These started in January 2020, sometimes weekly. Sometimes upon request we may have had two meetings in one week if NHS Lothian wanted to discuss matters separately.
- The meetings were not attended only by Hoare Lea and Imtech but also NHS Lothian and its advisors.

- Minutes were issued to all attendees, including NHS Lothian (Minutes include full list of attendees). These minutes are stored on Imtech's server.
- The activities of the design and construction teams were discussed, recorded and agreed at the Technical Meetings.
- All of the above minutes were included in Hoare Lea's Stage 4 Design Report, Rev 7, previously submitted to the Inquiry (Exhibited at DF4) **(A37631721 – REP-2727164-08-SV-20200313-Stage 4 Report-Rev07 - Bundle 13, Volume 4 – Page 944).**

Physical Works

The physical works created to satisfy the functional specification included:

a) Down Takings.
b) Replacement of two General Air Handling Units (AHU's) and associated Services.
c) Addition of 9 New AHU's including associated services for Isolation rooms.
d) Upgrade and addition of Ductwork.
e) Upgrade and addition of Low Temperature Hot Water (LTHW) and Chilled Water (CHW).
f) Additional Building management System (BMS) Controls.
g) All associated Builders work.

Changes

16. The RHYCP & DCN was due to open in July/August 2019, following completion of construction and commissioning of the hospital's numerous systems. Various news outlets reported that Jeane Freeman, former Health Secretary, cancelled the opening in July 2019 due to a number of faults discovered.

17. There were a lot of comments from the Press around the Project. We decided to ignore it to stay focused on the task at hand. Imtech only took into account the contractual documentation and instructions from the NHS/IHSL which, at its core, was HVC 107.

18. Imtech were not aware of the Institute of Occupational Medicine (IOM) reports and were not issued any reports from them. Once Imtech had carried out the commissioning of the systems it was responsible for, the NHS then employed IOM to carry out verification works.

Final Specification of the Ventilation System

19. With regards to the final specification of the ventilation system for RHYCP & DCN, this was contained within the Hoare Lea's Stage 4, Rev 7 Report dated 21 December 2020 (exhibited at DF4) **(A37631721 – REP-2727164-08-SV-20200313-Stage 4 Report-Rev07 - Bundle 13, Volume 4 – Page 944).**

20. In summary, the decision to replace the AHUs was made by Hoare Lea, with NHS's Lothian involvement and was accepted during the technical meetings.

Compliance of the System Installed with SHTM 03-01

21. The systems installed by Imtech pursuant to the Ventilation Works Contract were verified and signed off by both Arcadis (Independent Testers as per document SA2 (V 107) 10th March 2021) (exhibit DF5) and IOM, on behalf of NHS Lothian (certificate was not provided to Imtech) **(A32469196 – (b) Project Agreement Supplemental Agreement (No 2) 5 August 2020 - Bundle 13, Volume 4 – Page 1000)**. A Faithful and Gould completion certificate (exhibit DF6) was signed on 27 February 2021 **(A35680401 – RHCYP – HVC 107 – Completion Certificate Bundle 13, Volume 4 – Page 999).**

22. There were two minor derogations required for the HVC107 works namely:

- Air Handling Units, doors – this related to not being able to achieve "hinged access doors" for AHU because the doors would not open due to existing services fouling the swing of the door. It was therefore agreed by all parties that a derogation of installing lift-off access panels was acceptable.

- Lighting levels – this related to the lux lighting level within a consulting room. In order to provide the required level of lighting, an upgrade would need to be carried out and it was agreed by way of derogation that this was not needed.

23. Finally, the design meetings included technical representation from all stakeholders, who continuously challenged & reviewed design proposals to ensure compliance and that the brief was met. This is demonstrated in the Minutes contained in Hoare Lea Report, Stage 4 Report, Rev 7 (exhibit DF4) **(A37631721 – REP-2727164-08-SV-20200313-Stage 4 Report-Rev07 - Bundle 13, Volume 4 – Page 944).**

Commissioning, Testing and Validation

24. Testing and commissioning pursuant to the Ventilation Works Contract was carried out by Imtech subcontractors (H&V Commissioning), with all reports issued to the client – NHS Lothian. During this process, Arcadis (NHS Lothian's Independent Tester) also witnessed the commissioning and verified this by providing a sign off document for the project (exhibit DF5) **(A32469196 – (b) Project Agreement Supplemental Agreement (No 2) 5 August 2020 - Bundle 13, Volume 4 – Page 1000)**.

25. Imtech employed Phoenix Commissioning Services Ltd as Commissioning Manager, to programme manage all testing and commissioning of systems. Imtech employed H&V Commissioning to carry out the actual commissioning works for the following systems (November 2020 to March 2021):

- Flush and Chemically dose Low Temperature Hot Water & Chilled Water Systems
- Balance Low Temperature Hot Water & Chilled Water Systems
- HEPA Filter testing
- HVC 107 Ventilation Balance
- Set up Pressure Regime

26. There were also numerous commissioning activities carried out by a number of companies, the key ones being:

- AHU Factory Test (carried out by Daiken, the supplier, and witnessed by NHS Lothian and Imtech representatives) – July 2020.
- Ductwork Cleaning was carried out by Duct Clean Scotland – October 2020 to December 2020.
- Ductwork Testing was carried out by Ductform Ventilation – October 2020 to January 2021.
- Fire Alarm, Data, Access Control & CCTV was carried out by Boston Networks who were an incumbent contractor - January 2021.
- All existing medical Equipment was removed and replaced by Incumbent Contractor i.e. Draeger, Static (Feb 2021 / Jan 2021).
- Medical Gas were removed, reinstated, tested & Commissioned by HPI (Incumbent Contractor) and verified by Hulley & Kirkwood ahead of NHS Pharmaceutical checks – November 2020 to February 2021.
- BMS installation test & Commissioning by Schneider Controls Ltd (Incumbent Contractor) January 2021.
- Electrical Installation testing by Imtech Engineering – Nov 2020 - Jan 2021.

27. Arcadis worked on behalf of NHS Lothian as Independent Testers and signed off on the following systems as witnessed / compliant:

- AHU Factory Tests.
- Ductwork Cleaning.
- Ductwork Pressure Tests.
- AHU Site Tests.
- Low Temperature Hot Water Pumps.
- Chilled Water Pumps.
- Ventilation Flowrates.
- Low Temperature Hot Water Flowrates.
- Chilled Water Flowrates.
- Trace Heating.

- Sidestream Filters.
- Pressurisation Units.
- Nurse Call.
- BMS.
- Medical Gases.
- Draeger Equipment.
- Chilled Water Flushing.
- Low Temperature Hot Water Flushing.
- Pressure Cascades.
- Smoke & Fire Dampers.
- Lighting Levels.
- Electrical Completion.
- Access Control.
- CCTV.
- Fire Alarms.
- HEPA Filter Testing.

28. IOM worked on behalf of NHS Lothian to verify ventilation flow rates, and they did verify the flow rates.

Declaration

29. I believe that the facts stated in this witness statement are true to the best of my knowledge, information, and belief. I understand that this statement may form part of the evidence before the Inquiry and be published on the Inquiry's website.