Guardtech group

CLIENT CASE STUDY

# CELL & GENE THERAPY FACILITY

Good Manufacturing Practice Certification
GMP Quality

**Grade C, D & CNC**

University of Sheffield

Press play for video content

## THE CLIENT

University of Sheffield – a research university with a global reputation for excellence, renowned for the excellence, impact and distinctiveness of their research-led learning and teaching. Their Cell & Gene Therapy courses are tailored for students interested in advanced therapies, how these can be used to treat inherited diseases, and the steps needed to take Cell & Gene Therapy products from the lab bench to the bedside.

**Cell & Gene Therapy**

**18+/-2 C <65% RH**

**400m²**

## THE BRIEF

**The client had engaged with a Principal Contractor to construct a new gene therapy innovation centre to advance scientific discoveries and promising treatment options for many life-threatening diseases. Guardtech were contracted to provide the cleanrooms for the pioneering Sheffield Gene Therapy Innovation and Manufacturing Centre (GTIMC).**

## "We look forward to working with the client again..."

Projects Director Conor Barwise said:
"It was great to be selected to fulfil the cleanroom fit-out aspect of this impressive project.
"There were a number of challenges in the process, but we made a concerted effort to do everything we could to ensure the client was happy with the finished product.
"We wish the University of Sheffield all the best for the future and look forward to working with them again."

**Conor Barwise**
Guardtech Group
Projects Director

Guardtech group

Cleanroom solutions

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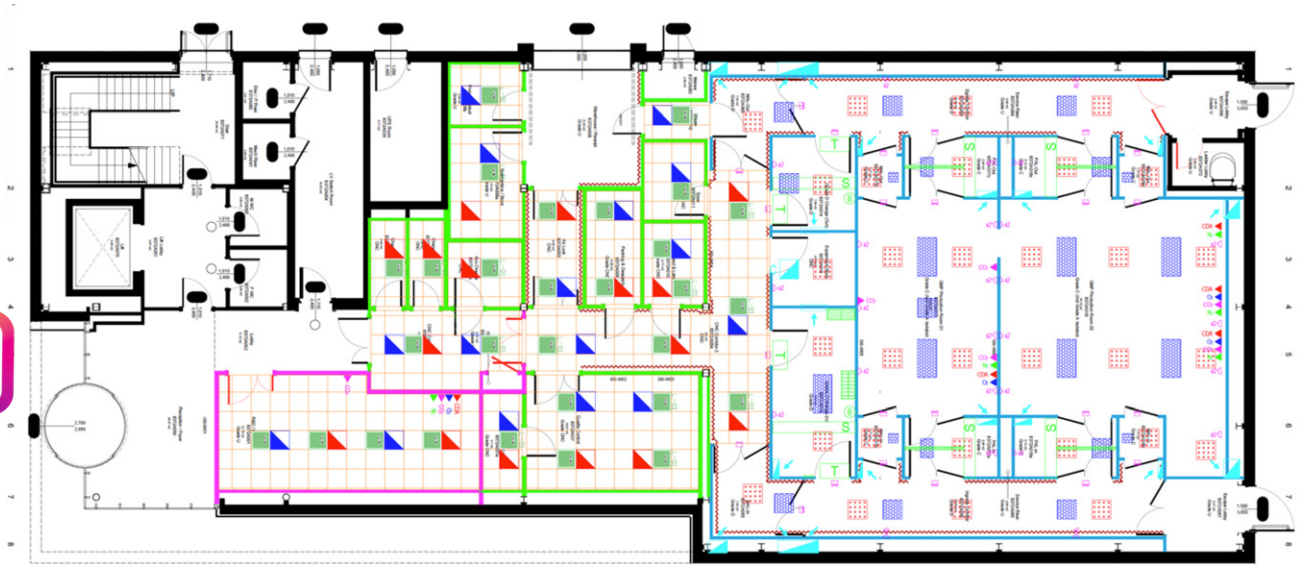

GT Shell official panel system partner:

Kingspan Partner

## THE TECH SPECS

*A controlled environment designed, installed, cleaned and commissioned by Guardtech built to the following specification:*

◆ **Structural:** GT Shell Max fully flush wall panel system, GT Shell Fire wall panel system, GT Lid Max fully flush ceiling panelling system, GT Lid Lite powder-coated ceiling tile system (CNC areas), 9 x GT Access Max fully flush single doors, 4 x GT Access Fire single doors, 10 x GT Access Max fully flush double doors, 11 x GT Plus single doors, 4 x GT Pro gas-tight single doors, 4 x GT Pro gas-tight double doors, GT Deck Pro vinyl flooring flush into panel rebate, coved 100m from floor level.

◆ **Electrical:** GT Lux Pro & GT Lux Lite LED lighting units providing 500 lux at bench level, electromagnetic door interlocks with status indicators & break glass, 25 x 13amp double stainless steel sockets in panel core raceway,


25 x 13amp double sockets in PVC trunking in CNC areas.

◆ **Mechanical:** GT Flow Pharma H14 HEPA Terminal Filters providing 35 air changes per hour in the Grade C areas and 25 in the Grade D areas, 4 x GT Air Max Air Handling Units (AHUs) located on roof, Bioquell Proteq Generator decontamination system.

◆ **Monitoring:** GT Scan Max Environmental Monitoring System (EMS) measuring temperature, humidity & pressure via 17 x in-room stainless steel LCD panels connected to client PC utilising EU Annex 11 compliant EMS software.

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- **Furniture:** 2 x 600mm x 790mm x 600mm Grade 304 stainless steel transfer hatches with electrical interlocks (one including in-built active Fan Filter Unit), 4 x 1,500mm x 400mm x 450mm (Grade 304 stainless steel stepover benches, 4 x Grade 304 stainless steel shelving units & 4 x Grade 304 stainless steel waste bin units.

## THE CHALLENGES

**Pressure's on:** Each process room in the facility required its own AHU, including some of CNC spaces. In total, seven AHUs were installed to deal with containment whilst each room had to depend on each other in terms of balance and interrelated pressures. The Building Management System (BMS) also featured a complex controls system which required a bespoke head end to be implemented. This all presented a number of issues for the Guardtech Design and Installation teams to tackle, but they were up to the challenge.

**Keep it tight:** The team were tasked with achieving very tight leakage rates on all doors in the facility.

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The Guardtech Group backstage team worked diligently to source appropriate doors that met the specified leakage rate whilst remaining on budget for the client.

**Keep it clean:** A Vaporized Hydrogen Peroxide (VHP) cleaning system was installed as part of the turnkey package – and this had to be interfaced with the bespoke BMS previously mentioned so that each process suite could be sterilised in isolation while the other rooms remained operational.

**Busy business:** This was a very tight and expedited programme that had to take place with a number of different number of contractors working onsite concurrently. This meant that we had to use all our expertise to ensure we controlled movement and scheduling to ensure our usual clean-build standards were met.

**Pesky plant:** This project included the installation and fitting of a significant number of utilities – including seven AHUs, two chillers, two air source heat pumps and compressed air. This required the Guardtech Group Design Team to produce a tight layout design which featured ductwork, containment and pipework whilst also co-ordinating the plant area with other contractors.

***"The installation included seven AHUs, two chillers, two air source heat pumps and compressed air"***

**Keep it sustainable:** This was a Building Research Establishment Environmental Assessment Methodology (BREEAM) project – the world's leading science-based suite of validation and certification systems for sustainable built environment – and so had to be constructed in the most energy-efficient manner possible, demonstrating the Group's commitment to sustainable working practices, optimal building performance and general ethical and environmental considerations.

## THE RESULT

**Projects Director Conor Barwise said: "It was great to be selected to fulfil the cleanroom fit-out aspect of this impressive project.**

**"There were a number of challenges in the process, but we made a concerted effort to do everything we could to ensure the client was happy with the finished product.**

**"We wish the University of Sheffield all the best for the future and look forward to working with them again sometime."**