

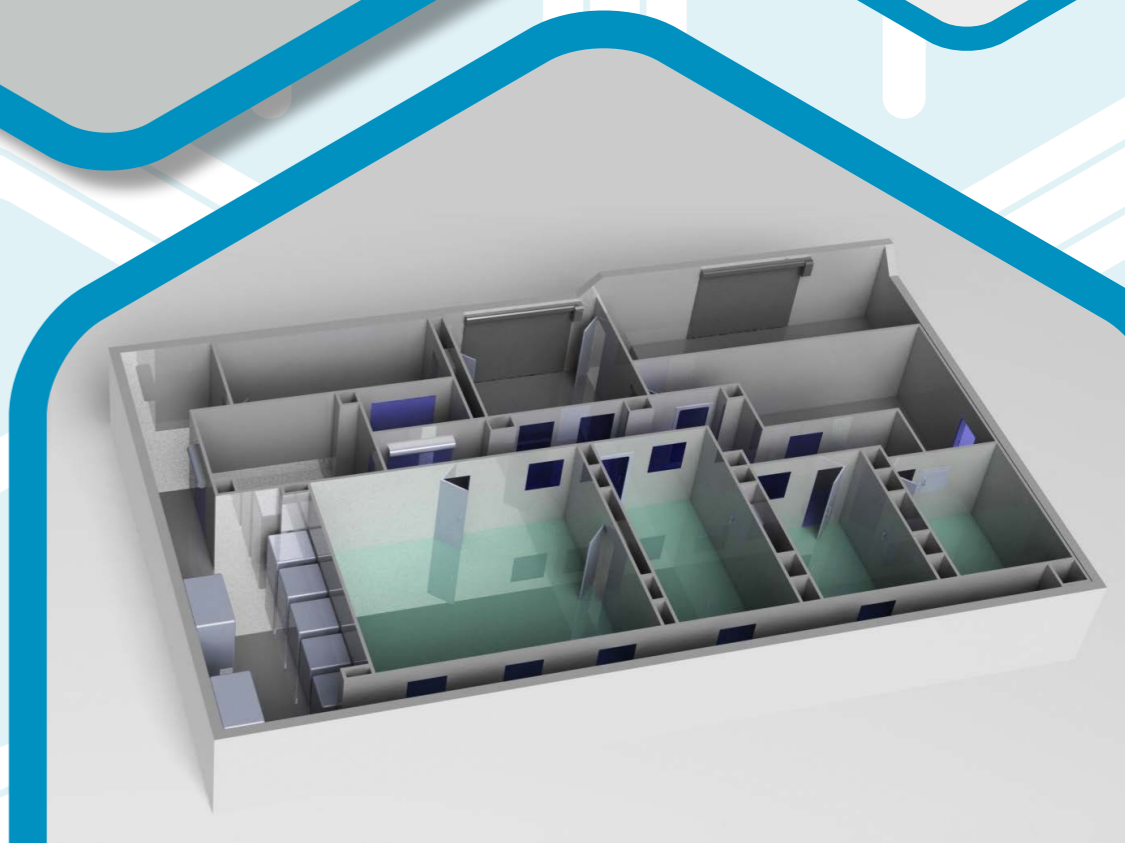
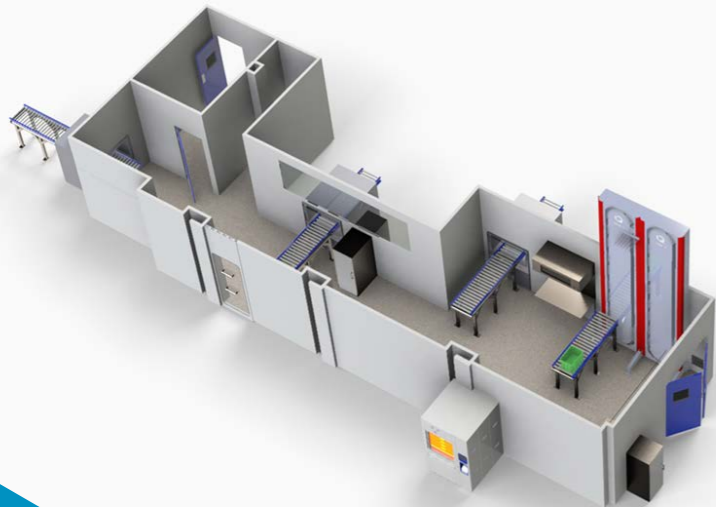


Guardtech  
cleanrooms



[www.guardtechcleanrooms.com](http://www.guardtechcleanrooms.com)

Guardtech  
group



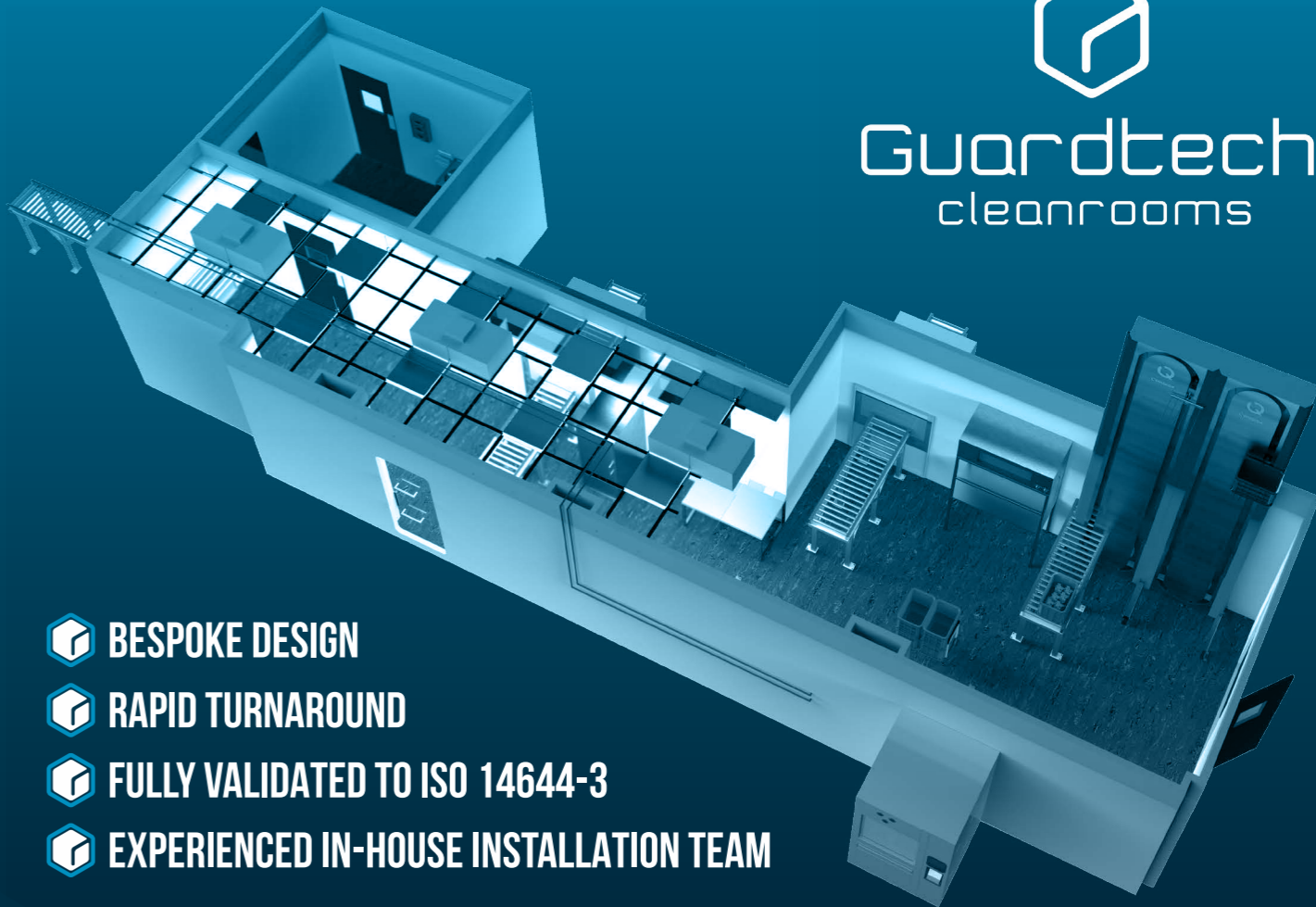
MODULAR CLEANROOM  
ENQUIRY FORM

Name:  
Location:

Company:  
Telephone:

Position:  
Email address:

Installation address																								
How did you hear about us?	Google: Magazine advert:		Bing:		Email: Event or exhibition:		Word of mouth: Business directory:		Facebook:		Twitter: Other:		LinkedIn:											
Function	Cleanroom:				Laboratory:				Biosafety Lab:				Containment Suite:											
Classification	ISO8:		ISO7:		ISO6:		ISO5:		Level One:		Level Two:		Level Three:											
External cleanroom dimensions	Length:				Width:				Height:															
Personnel airlock (PAL)	Length:				Width:				Height:															
Materials airlock (MAL)	N/A:		Length:				Width:				Height:													
Internal rooms	One:		Two:		Three:		Four:		Five:		Six:													
Panel system	Fully Flush:				Semi Flush:																			
Doors	Rapid Roll:				Single Doors:				Double Doors:				Quantity:											
Windows (quantity)	900 x 900mm:				windows				1500 x 900mm:				windows											
Flooring	N/A:		Vinyl:		ESD Vinyl:				Resin:															
Temperature control	No:		Yes:		°C +/-				°C															
Humidity control	No:		Yes:		°C +/-				°C															
Heatload	Max Occupancy:				operators				Equipment:				kW											
Lighting	500 Lux:				750 Lux:				1250 Lux:															
13-amp double sockets	N/A:		2:		4:		6:		8:		10:		15:		20:		25:		30:		35:		40:	
Network sockets	N/A:		2:		4:		6:		8:		10:		15:		20:									
3-phase power	N/A:		16-Amp:		outlets				32-Amp:				outlets				63-Amp:				outlets			
Other mechanical requirements	Compressed Air: Purified Water:				Extraction: Town's Water Supply:				Process Gases:				Central Vacuum:				Drainage:							
Environmental monitoring	Analogue – Pressure Only:				Digital – Temperature, Humidity & Pressure:																			
	Full Environmental Monitoring System – With Sensors & Software:																							
Furniture (quantity)	Stepover Bench: Sink:				Trespa Work Bench: Garment Rail:				Ergonomic Chairs: Bin:				Storage Cabinet:											
Equipment (quantity)	Laminar Flow Unit:				Biological Safety Cabinet:				Transfer Hatch:				Trolley Hatch:				Autoclave:							



- BESPOKE DESIGN
- RAPID TURNAROUND
- FULLY VALIDATED TO ISO 14644-3
- EXPERIENCED IN-HOUSE INSTALLATION TEAM

MODULAR  
CLEANROOMS

**GUARDTECH CLEANROOMS** are a specialist design & build company, constructing custom cleanrooms, controlled environments, containment suites and laboratories.

Guardtech modular cleanrooms are a flexible and affordable way to create versatile controlled environments – completely scalable, from 20m² to 2,000m². Modular cleanrooms can be altered, expanded, upgraded and relocated, ensuring your environment continues to meet the demands of your business and your future growth.

Guardtech offer a variety of materials to complete your modular cleanroom, and a tiered product range helps you to align specification with budget.

A specialist in-house Design Team, with decades of cleanroom experience, focus on delivering concepts that

facilitate client application and process, whilst optimising the host building and incorporating process utilities.

Guardtech create bespoke classified environments, fully customised to suit a range of industries and applications. Turnkey installations are project managed and delivered by Guardtech's dedicated structural, mechanical & electrical Installation Engineers.

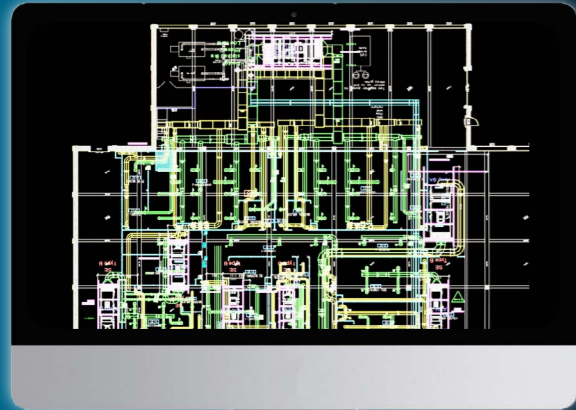
All projects are commissioned and validated by the Guardtech Group Decontamination & Validation Team and supported with detailed, quality assured technical documentation providing full compliance to standards.

Press play for video content



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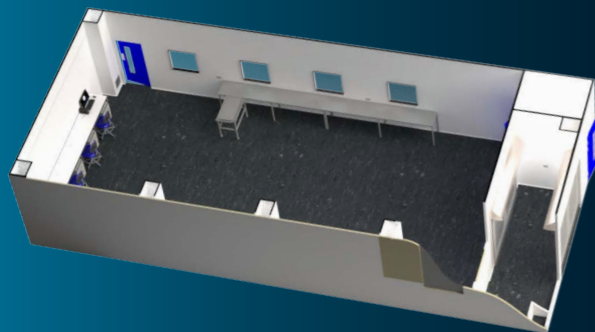
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- PAGE 5 – Modular introduction
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- PAGE 8-9 – Mechanical & Electrical
- PAGE 10-11 – Furniture & Equipment
- PAGE 12 – What we offer
- PAGE 13 – Organogram
- PAGE 14-23 – Case Studies



## DESIGN

**G**uardtech employ their own in-house Design Team for 2D drafting, 3D & BIM modelling and mechanical and electrical design, working with AutoCAD, SolidWorks and Revit. Guardtech can also produce 3D virtual walk-through tours of your facility supported by virtual reality (VR) headsets to allow an interactive experience with your cleanroom design.

For more information about our wider services, see page 10



## COVING

Wall-to-wall and wall-to-ceiling coving available. Fully flush panel system provides flush floor connection as per photo.



## DOORS

- Rapid rise doors: PVC curtain door with 304 stainless steel frame and housing, motion-sensor activation.
- GRP or powder-coated steel personnel doors: single or double, stainless steel handle, push and kick plates, 400mm x 400mm vision panel.
- All door options can be electronically interlocked.



## GLAZING

Fully-flush or semi-flush glazing options available. A range of sizes from standard viewing panels to full height gallery windows. Fish tank glazing also available.



## WALLS

Powder-coated mild steel structural panels with interlocking joints come with a range of insulation cores and thicknesses, can be FR30 and FR60 fire-rated and have a range of coatings applied. Highly durable, cleanable and chemically resistant, the walls are silicon sealed between joints to provide a crevice-free installation.



Press play for video content



## CEILING

Panelled ceilings specifications are as per the cleanroom wall system – alternatively, ceiling grid and tiles can be utilised. Considerations for walk-on applications can be accommodated by both of these ceiling types.



## FLOORING

**Vinyl:** homogenous vinyl floor reinforced with cross-linked polyurethane, UV-cured, hot-welded joints. Coved 100mm up the wall over underlay former and capped. Copper-grounded anti-static vinyl also available.

**Resin:** flexible epoxy or urethane floor screed that provides protection for heavy-duty environments whilst also being highly chemically resistant, slip resistant and cleanable.



## ANCILLARIES



### Mezzanine Floor

To optimise your available space and support the cleanroom structure, we offer full mezzanine design and installation, including edge protection, staircases and cat ladders.



### Supporting Steelwork

For applications where the host building cannot be used to support the cleanroom structure, steelwork erections may be necessary – these can also be used to facilitate plant gantries and maintenance access.



### Fire & ATEX Ratings

We are able to offer fire rated and ATEX rated components for all structural, electrical and mechanical parts of the build. These ratings are often dependant on review from insurers or building control.



# MECHANICAL & ELECTRICAL

## FILTRATION



For ISO14644 compliant environments, H14 HEPA filtration is required. This can be delivered in the form of terminal filters connected to air handling units (AHUs) via ductwork or as individual fan filter unit modules powered by fan speed controllers. HEPA filtration can also be placed on the exhaust via plenum boxes or specialist safe change units to facilitate containment or eliminate cross contamination.



## HVAC

Temperature and humidity control can be provided by bespoke air handling units (AHUs) or standard packaged CRAC units. Fan coil units (FCUs) are a cost-effective way of maintaining temperature conditions in applications where humidity control is not specifically required. Air distribution can be conducted via ductwork or plenum and will be design dependent.



## EMS



Guardtech provide a fully integrated Environmental Monitoring System that can also be 21CFR Part 11 compliant. With a range of high-performance multifunction sensors, temperature, humidity and pressure can all be monitored in real time and recorded for an audit trail. Fully flush or semi flush LED display gives in-room feedback.



## POWER MANAGEMENT



All cleanrooms require a power connection from an external source. The rating of this will depend on the power demand of each room. UPS (uninterruptible power supply) battery back-up can also be provided and a changeover switch can be installed to alternate between a mains and generator supply.



Press play for video content



## CONTROL PANEL

15.7" touchscreen HMI+PLC provides a full control and monitoring system for your modular cleanroom. Environmental Monitoring System feeds back to give real-time data on temperature, humidity and pressure. Fan speeds and HVAC systems can be controlled as well as other compatible equipment.



## GAS



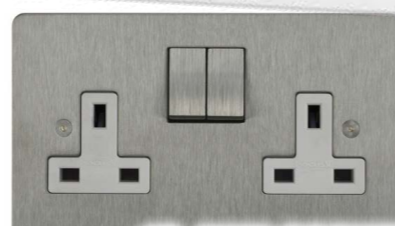
Compressed air and nitrogen via compressors and generators housed directly within the cleanroom or lab – or in an enclosed plantroom. Pipework, point-of-use fittings, regulators and hook-up connections can also be put in place.

## EXTRACTION



**Chemicals, airborne particulate and heat can all be extracted to a localised filtration unit for scrubbing. Safe change modules can also be placed on the exhaust system to mitigate the risk of cross-contamination.**

## 13-AMP SOCKET



All modular cleanrooms can include stainless steel or white antimicrobial plastic 13-amp sockets. CAT6 network points and 16, 32 and 63amp three-phase outlets are also available. NIC EIC registered.

## LIGHTING



**Powder-coated steel light units, flush mounted into the ceiling panels with drop-down hinged diffuser. Also available as surface-mounted aluminium LED batten luminaires for laboratories. Activation by switch or PIR (passive infrared) sensor. Lights can be UV filtered for photo sensitive processes.**

## CONTAINMENT



Guardtech install sockets and services flush to the panel system with containment embedded within the panel core. For laboratories, three-compartment PVC trunking is used for flexibility of socket positioning and cost effectiveness.



# FURNITURE & EQUIPMENT

## ACCESSORIES



Guardtech can offer a number of accessories with their range of modular cleanrooms, including Dyson Airblade hand dryers, various dispensers and stainless steel coat hooks.

Press play for video content

## BIOSAFETY CABINET

Guardtech are delighted to offer the full range of Esco biosafety cabinets in all of our modular builds. This includes delivery, fitting and commissioning – if required. Popular installations feature the Airstream Class II Biosafety Cabinet – AC2-4E8 4ft model, but we can adapt the layout to meet your operational requirements.



## LAMINAR FLOW UNIT

Guardtech have partnered with Esco to bring you an extensive, exciting range of equipment solutions for your cleanroom, with an array of models to meet your laminar flow clean bench needs. Esco's new generation Airstream® laminar flow units offer a wide range of options in terms of material specs, width and height.



## TRANSFER HATCHES

These hatches provide a controlled air-tight zone for the transfer of products on trolleys, eliminating unnecessary traffic from the cleanroom, reducing particle ingress and decreasing the risk of cross-contamination.



## CHAIRS

Our MVM Pro chairs are designed for critical environments, including static-sensitive and particle/microbe-controlled areas. The MVM Pro offers weight-activated control, meaning an individual user's weight sets the tension, which alleviates resetting controls in multi-user shift workplaces.



SHELVING UNIT



SINK



WORK BENCH



CABINET



STEPOVER BENCH

Stainless steel shelving units available in a range of sizes and shelf configurations. These units are resistant to harsher cleaning products and are specially designed to be easy to clean, durable and functional.

Stainless steel sinks can be plumbed in to hot & cold supplies or provided with a point-of-use heater, drainage connection gravity-fed to mains or via Saniflo pump, range of taps available including motion sensor activated.

Whether it's chemical-resistant Trespa TopLab or simply a stainless steel surface you require, we can fit out your cleanroom with high quality workbenches to ensure the work you do isn't compromised.

Guardtech's high-quality cabinets are manufactured from either Trespa or grade 304/316L stainless steel. The units are available with a range of door and drawer configurations, stainless fixtures and fittings and can be arranged as mobile units on casters or static cabinets on solid levelling legs.

Guardtech stepover benches come as standard seating benches on levelling legs or with storage compartments underneath for shoes, garments, PPE and consumables. Manufactured from Trespa or grade 304/316L stainless steel, Guardtech's stepover benches are durable and easy to clean.



# MODULAR CLEANROOMS

# THE COMPLETE PACKAGE



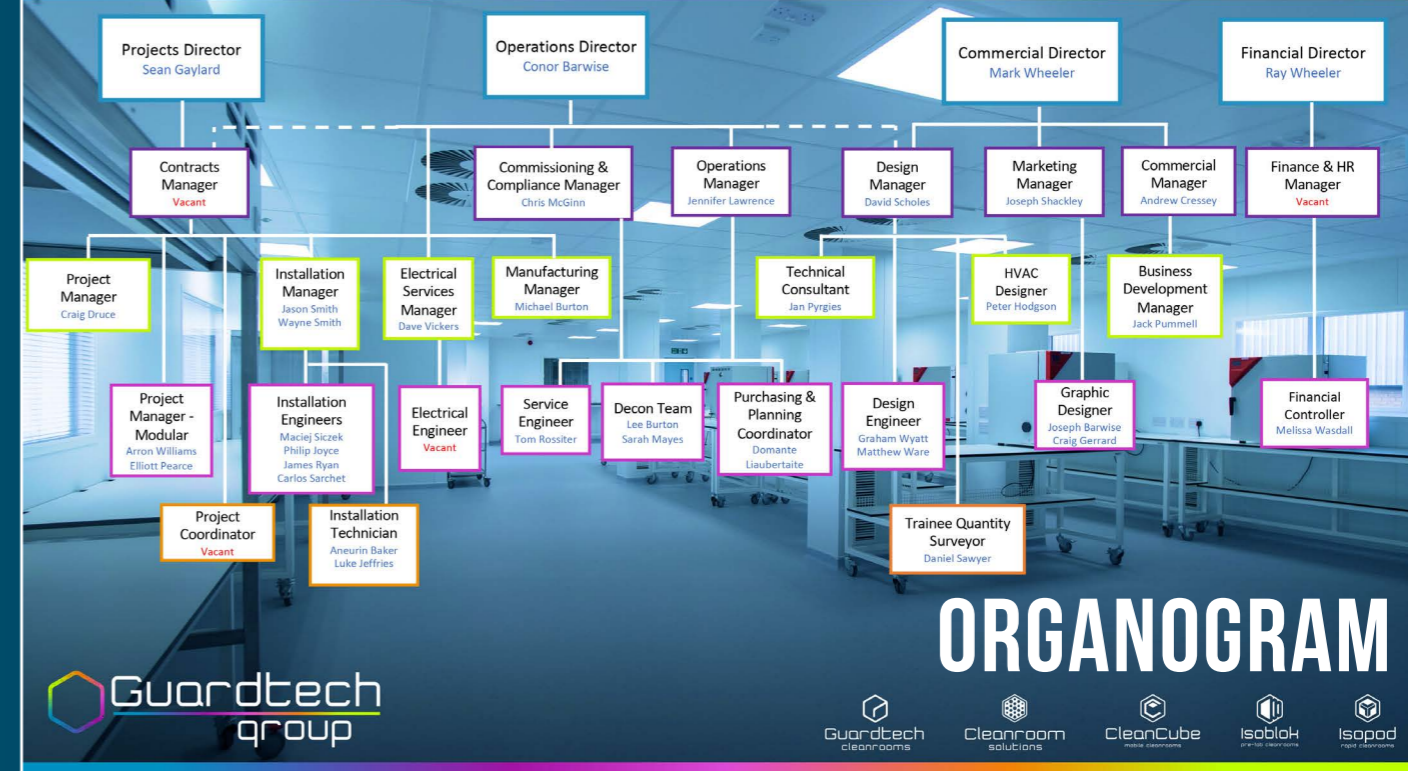
## SERVICING

From commissioning new-build controlled environments to service, maintenance, testing and validation of existing cleanrooms, the Guardtech Service Department support ongoing compliance in all cGMP & ISO14644 classified cleanrooms. Guardtech offer three or five-year Service Agreements with two visits per year from Guardtech engineers as standard, but our dedicated Services team is happy to discuss the particular needs of your business to ensure you receive the appropriate level of support.



## MAINTENANCE

Carrying out routine maintenance and repairs nationwide, the Guardtech Service Department support clients with HEPA filter replacements, HVAC maintenance, repairs and upgrades, maintenance and repair of air compressors and gas generators – as well as taking care of separate devices including laminar flow hoods, LAF workbenches and LAF cabinets, air showers, downflow booths, fume hoods and cupboards and garment stockers.



## VALIDATION

Guardtech conduct full, comprehensive cleanroom Validations, which include air velocity and volumetric flow rate measurement, room differential pressure testing, airborne particle counting, temperature and humidity monitoring, light and sound level measurement, filter integrity testing, pressure and flow gauge calibration, ISO certification and feature full Validation reports.



## DECONTAMINATION

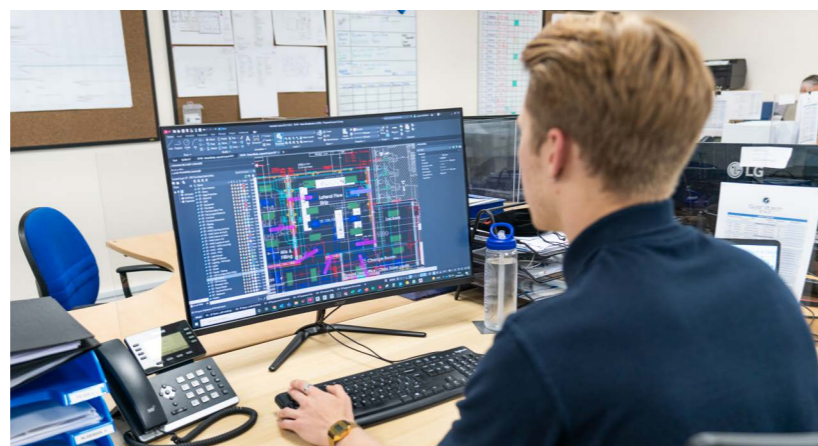
Offering a range of one-off post-build or pre-validation cleans, to quarterly, monthly, weekly or daily cleans, the Guardtech Decontamination Team are specialists in restoring control to critical environments and supporting clients in maintaining compliant facilities, with post-construction builders' cleans often preceded by our high-performance deep clean programme.



## DESIGN

Guardtech's in-house Design team consists of specialist 2D (AutoCAD) and 3D (Solidworks) Engineers, specialists in transforming your concept into a fully working design, as well our experienced Directors, who have more than 50 years' combined experience in the sector. Our comprehensive design offering includes:

- Functional Design Specification (FDS) & URS Compilation
- 2D Floorplans, Elevations & Detail
- HVAC P&ID, Ductwork Schematics, Lighting Layouts
- Lighting & Airflow Calculations, Pressure Cascade Diagrams
- 3D Models and Animations/Walk-throughs
- DQ/IQ/OQ Documentation.



## PROJECT MANAGEMENT

Each and every project is assigned a dedicated Project Manager, skilled at transferring the fully worked up design into a complete project plan and schedule. Co-ordinating all aspects of the project, from design to installation to Validation, supported by Guardtech's Operations team, our Project Managers provide

onsite presence and client co-ordination to assure your schedules are being met. Our Project Management packages include:

- Weekly Progress Meetings and Online Photo Journals
- CDM & Building Control co-ordination
- Onsite a minimum of two days per week.



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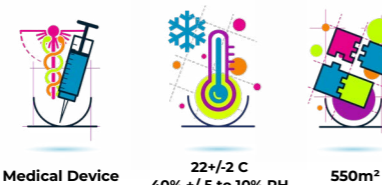


## THE CLIENT

Sense – developers of unconstrained, instrument-free molecular diagnostic technologies that allow caregivers to open the care pathway to everyone. Delivering incredibly fast and accurate results, Sense's diagnostic medical devices are easy for clinicians to master so testing can be performed almost anywhere by anyone, reducing overall costs while driving more efficient care.

## THE BRIEF

Guardtech Cleanrooms were engaged by Principle Contractors COEL, the office interior design & fit-out specialists, to deliver the controlled environment elements of a major build which would give Sense more capacity to manufacture their industry-leading biodetection products – which help to detect potential illnesses such as COVID-19.



**“We enjoyed working with COEL to deliver this project...”**

Guardtech Group Operations Director Conor Barwise added: “Myself and the other Guardtech Group Directors are delighted with the outcome of this stunning project. We’ve all really enjoyed working with COEL to deliver this aesthetically pleasing high-performance controlled environment for such an interesting and important application. Congratulations to all involved and thanks to the Guardtech Cleanrooms team for producing such a brilliant build on time and on budget.”

Conor Barwise  
Guardtech Group  
Operations Director

coel

Guardtech  
cleanrooms

## THE TECH SPECS

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

◆ **Structural:** GT Shell Pro wall panelling system, GT Lid Pro panelled ceiling system, 12 x GT Access Plus powder-coated steel single doors, 11 x GT Access Plus powder-coated steel double doors, 11 x GT Vision Plus panels with 4 x additional fish tank glazing units, 2 x GT Rise Max rapid roll doors, GT Deck Plus vinyl flooring capped & coved in Sapphire Blue, Edge Protection for boundary of panelled ceiling, steel framework.

◆ **Electrical:** GT Lux Extra LED lighting units providing 500 lux at bench level and motion sensor activation, electromagnetic door interlocks with status indicators, 92 x 13amp sockets and 32 x CAT6a in three-compartment PVC trunking.

◆ **Mechanical:** GT Flow Plus H14 HEPA Fan Filter Units with G4 filters providing

20 air changes per hour, 2 x GT Air Pro Upflow CRAC Air Handling Units (AHUs), Desiccant Dryer, Post Dryer, DX Cooling Fan Coil Unit, extraction provided by LEV arms.

◆ **Monitoring:** GT Scan Pro Environmental Monitoring System (EMS) operated by Oncall Finestra software – measuring temperature, humidity & pressure via in-room LED displays, in-room alarm beacons.

◆ **Furniture:** 26 x Trespa TopLab workbenches, 2 x stainless steel stepover benches with compartments, stainless steel transfer hatch with mechanical interlock, 5 x stainless steel single operator sinks with seamless basin, splash back and shroud and motion-sensor operated tap, 2 x stainless steel three-compartment wall dispensers, 2 x stainless steel coat hooks, 8 x 4 nest laminate lockers, 2 x full-length stainless steel mirrors.

## THE CHALLENGES

**Engaging with multiple contractors:** This was a major project involving several significant stakeholders, which meant our Project Manager Craig Druce and his team had to

communicate effectively, schedule regular meetings and maintain a consistent dialogue with multiple contractors, both internally and with external parties. As Guardtech were not the Principal Contractor for this build, we were one of a number of contractors on site, all vying for their own space.

Things had to be done in a certain order to ensure CDM regulations were adhered to and the Guardtech Installation team had to work effectively with other parties to make the build as hassle free as possible. The end result was a stunning cleanroom build – which is testament to the hard work of PM Craig, Service Manager Chris McGinn and all the Guardtech crew involved.

**Wealth of services:** This project included the installation of a number of different provisions, such as compressed air and argon gasses, deionised water, comprehensive electrics and a CCTV system, which all had to be integrated smoothly with our set-up for cleanroom construction.

This often meant sharing our space with third parties and having to be flexible and malleable when being challenged by their own practices and expectations. But Craig and the

# MEDICAL DEVICE

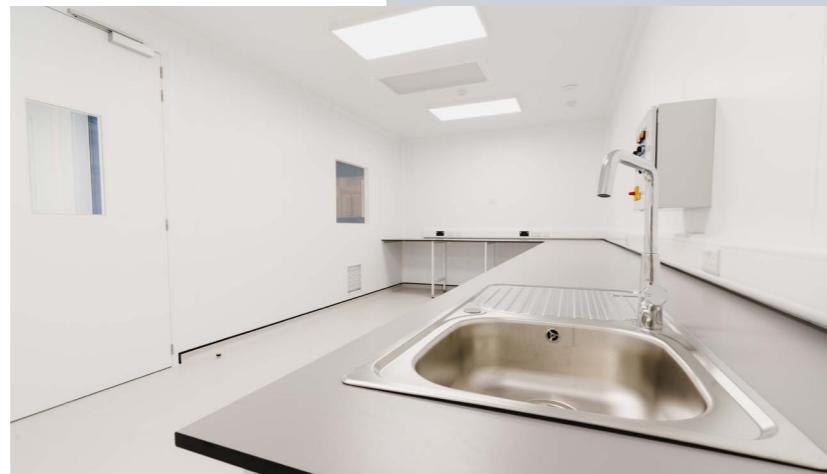


team worked hard to maintain a high level of discipline across the board – being respectful towards others and working together effectively in the shared space.

**Qualification of room:** The nature of this project meant that there was a rigorous level of testing required – alongside the standard Design Qualification, Installation Qualification and Operational Qualification there was also DOP and recovery testing. With this higher level of standard commissioning, Guardtech staff needed to be more diligent to ensure the rooms achieved the standards required.

**Anti-slip floor amendment:** There was a change of plan midway through construction which meant the flooring had to be altered in the deionised water room – helping to ensure compliance with health & safety regulations. The original flooring had to be removed and drainage and sump-pumps were then installed before a new anti-slip floor was finally laid.

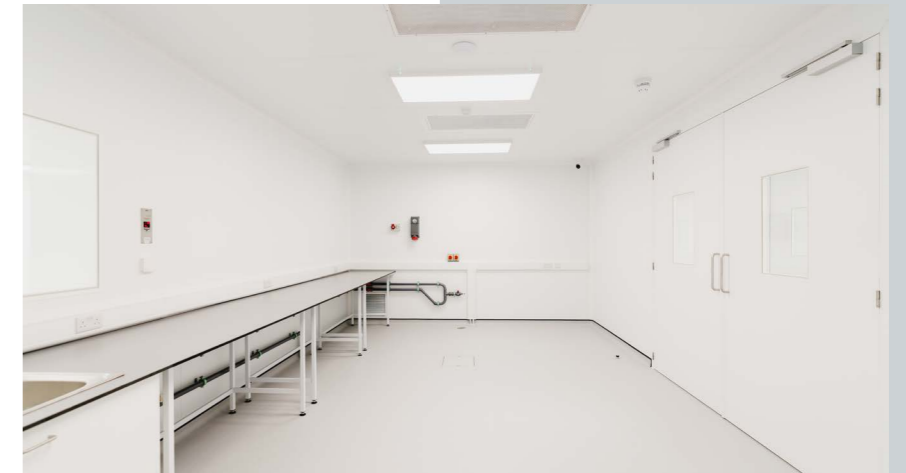
This had a knock-on effect in terms of the overall schedule, but the Guardtech team worked tirelessly to ensure the quality of the overall project was in no way compromised and no deadlines were missed.



## THE RESULT

Guardtech Group Project Manager Craig Druce, who steered the Guardtech Cleanrooms team on this project, said: "This was my first major project at Guardtech and it was certainly a challenge, but what the team have produced is brilliant – I'm so proud of their efforts. It was a real pleasure working with COEL and I hope we get the chance to collaborate again soon."

Guardtech Group Operations Director Conor Barwise added: "Myself and the other Guardtech Group Directors are delighted with the outcome of this stunning project. "We've all really enjoyed working with COEL to deliver this aesthetically pleasing high-performance controlled environment for such an interesting and important application. "Congratulations to all involved and thanks to the Guardtech Cleanrooms team for producing such a brilliant build on time and on budget."





## THE CLIENT

One of the leading suppliers and system integrators of support equipment for military and commercial electro-optical sensors in the world. With decades of experience in their focus markets, the client brings real world experience to assist customers in meeting the demands of today's military and security equipment programs.

## THE BRIEF

The Kent-based client wanted to adopt a new production process within their facility, which is best suited to controlled and classified conditions.

After successfully working with Guardtech on a previous cleanroom build, the client asked Guardtech to consult on the design and to formulate a proposal for the new cleanroom.



Defence & Aerospace



21+/-2C  
40-55% RH



140m<sup>2</sup>



## "A pleasure for us to return to a great client..."

Guardtech Cleanrooms Project Manager Craig Druce said: "Thanks to everyone involved in this project – the Design and Installation teams worked seamlessly to deliver a great build."

"We had to rework some of the plans due to an issue with extraction, but all of the parties involved came together brilliantly to devise a winning solution. I wish the client well in their future endeavours and hope they continue to go from strength to strength."

"It was a pleasure for Guardtech to return to a place where we've previously installed a modular cleanroom and I hope we get the chance to return one day in the future."

Craig Druce  
Guardtech Cleanrooms  
Project Manager

Guardtech  
cleanrooms

## THE TECH SPECS

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

◆ **Structural:** GT Shell Pro de-ended wall panel system, GT Lid Pro de-ended ceiling panel system, GT Access Plus semi-flush single and double doors with electro-magnetic interlocks and status indicators, GT Deck Plus vinyl flooring capped & coved in Sapphire Blue swatch.

◆ **Mechanical:** GT Flow Plus Fan Filter Units (FFUs) with H14 HEPA filters achieving 35 air changes per hour, HVAC provided by GT Air Pro 25kW CRAC Air Handling Units (AHUs), gas services: compressed air, nitrogen, vacuum pumps, heat extraction in plant room, equipment extraction, FumeCube in plant room, exhaust recirculated to AHU.

◆ **Electrical:** 13amp sockets in panel core,

CAT6 data outlets, electro-magnetic interlocks door and status indicators, GT Lux Pro LED switch activation lighting achieving 1200 lux/12,800 lumens.

◆ **Environmental Monitoring:** GT Scan Pro Environmental Monitoring System (EMS) with Stainless Steel Panel LED Displays measuring Temperature, Humidity, Pressure, fed back to client PC. In-room alarm beacons.

◆ **Furniture & Equipment:** Ducted fume cupboard, 5 x H14 HEPA filter laminar flow workstations, 5 x Trespa benches with grade 304 stainless steel support stands, contamination control mat.

## THE CHALLENGES

**Making space:** This project included a sizeable collection of critical components and utilities that had to be carefully condensed into a tight plant room. As well as a relatively large CRAC upflow Air Handling Unit (AHU), the plant room also had to cater for the Uninterrupted Power Supply (UPS), compressors, patch panels and the distribution board, therefore

requiring some skilful plotting from Guardtech's Design and Install teams.

**Scrubbing up:** Because of the nature of the work involved with the client's application, there was a potentially harmful chemical that needed to be extracted from the process space. However, as per our original plans, we couldn't house a Pure scrubber to deal with the chemical in question. The room had to be equalised and re-balanced and there was some significant post-HVAC design work to ensure a ducted fume could be accommodated to solve the issue.

**Great integrating:** There were often a number of different trades on site at once – from HVAC and ducting operatives to flooring specialists, panel installers and electrical engineers to utilities such as nitrogen gas, compressed air and vacuum. The Guardtech Cleanrooms team were able to cater to everyone's needs and ensure a harmonious and efficient working environment. There were also some new faces involved in this project who had to embrace the Guardtech way quickly – but they did this with aplomb, showing a great degree skill to install our intelligent ceiling grid system.

## PRECISION SYSTEMS



## THE 2019 MODULAR



Guardtech Cleanrooms installed this stunning modular cleanroom at the same site back in 2019. Guardtech Group Commercial Director Mark Wheeler said: "We enjoyed working on our original project with this client so much that we were delighted to take on the latest build. We wish them well with what is pioneering manufacturing for their sector."

## THE RESULT

Guardtech Cleanrooms Project Manager Craig Druce said: "Thanks to everyone involved in this project – the Design and Installation teams worked seamlessly to deliver a great build. "We had to rework some of the plans due to an issue with extraction, but all of the parties involved came together brilliantly to devise a winning solution. "I wish the client well in their future endeavours and hope they continue to go from strength to strength. "It was a pleasure for Guardtech to return to a place where we've previously installed a modular cleanroom and I hope we get the chance to return one day in the future."





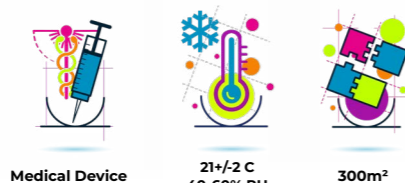
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## THE CLIENT

JEB Technologies Ltd – experts in the design, development, assembly and manufacturing of a diverse range of medical and industrial products. JEB provide an end-to-end product development service. With extensive medical and industrial experience of manufacturing, JEB offer the best solution from early design and concept development through to commercialisation.

## THE BRIEF

The client wanted to introduce new manufacturing and packaging cleanrooms in a warehouse space on their existing site in Suffolk. Guardtech were commissioned to design and construct a suite of modular cleanrooms which included a medical cleandown area.



## THE TECH SPECS

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

◆ **Structural:** GT Shell Plus PIR wall panels, GT Shell Lite PVC wall cladding, GT Lid Lite power-coated aluminium ceiling tiles, GT Access Plus semi flush powder-coated steel single and double doors, GT Deck Plus sapphire blue flooring capped & coved.

◆ **Electrical:** Electromagnetic door interlocks with status indicator and break light, 13-amp double sockets and CAT6A data sockets in 3-compartment PVC trunking, GT Lux Lite LED lighting panels providing 800 lux on average and 5,800 lumens per LED.

## “Exceeded our expectations for quality and delivery...”

Sean Licence, Head of Medical at JEB Technologies Ltd, said: “The cleanroom that Guardtech have built for us has exceeded our expectations for quality and time to delivery. From the first engagement with the sales team, right through to the team building and installing the cleanroom, Guardtech as a company have been thoroughly professional and really easy to work with. We will definitely be using them again in the future, and I would highly recommend Guardtech to others looking to have cleanrooms installed.”

Sean Licence  
Head of Medical at  
JEB Technologies



◆ **Mechanical:** GT Flow Plus H14 HEPA Fan Filter Units with G4 Pre-Filters providing air change rates of 35 per hour, GT Air Pro Upflow Unit ducted to plenum.

◆ **Monitoring:** GT Scan Pro Digital LED Environmental Monitoring panels displaying temperature, humidity and pressure reading from in-room installed probes. All fed back to a centralised 15.9” touchscreen controller located in Change Area.

◆ **Furniture & Equipment:** Grade 304 stainless steel transfer hatch with mechanical interlock and perspex vision panels, grade 304 stainless steel stepover benches with shoe compartments on levelling feet, two-bank three-tier lockers in grade 304 stainless steel on feet with sloping top.

## THE CHALLENGES

**Filtration puzzler:** Because of the layout of the host building, we needed to be creative with our placement of the Fan Filter Units in certain places to run alongside ductwork in the cleanrooms. It was

like an intricate puzzle – where every millimetre had to be accounted for and treated with the greatest care.

The FFU-to-ceiling clearance was as limited as 10mm in some spots and so the Guardtech Cleanrooms Installation team were required to put the pieces together in the GT Lite ceiling tile arrangement in such a manner that one tiny error would’ve caused major issues.

Fortunately, this kind of challenge is our bread and butter, and Project Manager Michael Burton oversaw a flawless ceiling/FFU arrangement.

**Large scale issues:** This three-room layout featured one of the biggest PALs (Personnel Airlocks) that Guardtech Cleanrooms’ ModSquad had ever done, with some huge, heavy glass transfer hatches proving particularly challenging to move around and install safely.

Everything in this build was on a grander scale than the ModSquad are usually accustomed to – with the biggest processing room measuring up at 26.5m x 8m, alongside a smaller room for packaging and then the aforementioned L-shape PAL for change and storage.

## Dastardly ductwork:

Despite having a lot of space to work with in many ways, there were limitations – the ceiling grid had to be carefully cut around the significant amount of ductwork serving the cleanroom, while the client also wanted us to deliver a 3.5m high ceiling.

Because of these two factors, the internal height space above the ceiling was extremely tight in places.

## THE RESULT

Sean Licence, Head of Medical at JEB Technologies Ltd, said: “The cleanroom that Guardtech have built for us has exceeded our expectations for quality and time to delivery.

“From the first engagement with the sales team, right through to the team building and installing the cleanroom, Guardtech as a company have been thoroughly professional and really easy to work with. “We will definitely be using them again in the future, and I would highly recommend Guardtech to others looking to have cleanrooms installed.”



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