Specialists in the Design, Manufacture and Installation of Laboratory Furniture, Fume Cupboards, Environmental Rooms, Extraction/LEV Systems and other Laboratory Services & Solutions.

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Technical Brochure

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Cleanline laboratory benching:

The Cleanline range of laboratory benching comprises of a series of epoxy powder coated support legs, secured together using epoxy powder coated aluminium extruded channel rails. The channel rails are fitted directly underneath the rear and front edges of the worktop with a 3rd rail to the rear at low level to provide substantial rigidity to the assembled support frame.

The leg frames can be cantilever, C frame or A frame, and are constructed from either 50mm x 25mm x 1.5mm or 3.0mm thick material depending on the leg frame type and the maximum weight load rating required. Each leg is fitted with an adjustable foot to allow for levelling. The channel rails comprise of a custom extruded aluminium profile which is available in single lengths of up to 4000mm which provides additional flexibility when positioning leg frames.

Once assembled the work surface is fixed directly on to the framework.

This type of benching accepts both mobile and suspended type storage units.
3 Rail system laboratory benching:

The 3R laboratory benching system comprises of a series of epoxy powder coated support legs, with epoxy powder coated span rails fixed between them. The span rails are fitted directly underneath the rear and front edges of the worktop with a 3rd rail to the rear at low level to provide substantial rigidity to the assembled support frame.

The leg frames can be cantilever, C frame or A frame, and are constructed from either 50mm x 25mm x 1.5mm or 3.0mm thick material depending on the leg frame type and the maximum weight load rating required. Each leg is fitted with an adjustable foot to allow for levelling.

The span rails are constructed from 51mm x 38mm channel section. Once assembled the work surface is fixed directly onto the framework.

This type of benching accepts both mobile and suspended type storage units.
Eco Laboratory benching:

The Eco laboratory benching system comprises of a series of epoxy powder coated support legs which are fixed direct to the rear wall. Trespa horizontal tie rails are then fitted directly underneath the front edges of the worktop and to the rear of the bench at low level to provide substantial rigidity to the assembled support frame.

The leg frames can be cantilever, C frame or A frame, and are constructed from either 50mm x 25mm x 1.5mm or 3.0mm thick material depending on the leg frame type and the maximum weight load rating required. Each leg is fitted with an adjustable foot to allow for levelling.

The horizontal tie rails are manufactured from 16mm thick Trespa. Once assembled the work surface is fixed directly on to the framework.

The Cantilever leg frame system can be fixed directly to the wall with no part touching the floor. This makes it an ideal product for use in animal and clean room facilities.

Mobile storage units can be easily accommodated with this style of benching.
**Academy Range of laboratory benching:**
The Academy range of laboratory benching utilises pedestal type storage units with a plinth, which is mounted onto the laboratory floor, the work surface is then fixed directly on top of the storage units.

The Academy range of under bench storage units are produced from 18mm melamine faced MDF with matching 2mm edge lippling. All storage units are fitted with adjustable levellers.

The door and draw fronts are constructed from 18mm melamine faced MDF with 2mm thick PVC lippling and hung on fully adjustable and concealed hinges with full 170 degree opening. Drawer boxes are manufactured with coated steel sides incorporating steel tracks with nylon rollers and integral restrainer. Backs and bases are 18mm melamine faced MDF.

The storage units are fitted with PVC 'D' type handles as standard.

**Internal shelf:**
Cupboards come complete with 1 x half depth height adjustable shelf, produced from 18mm melamine faced MDF with matching 2mm PVC edge lippling.

**Full depth shelves are available if required.**

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**Dimensions:**

**Double**
- Width = 1000mm
- Height = 884mm
- Depth = 515mm 0/a

**Single**
- Width = 500mm
- Height = 884mm
- Depth = 515mm 0/a

**Tray Units**
- Width = 358/704/1040mm
- Height = 884mm
- Depth = 495mm 0/a

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Tray units are available with or without doors.

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Balance Bench:

A balance bench is used to eliminate troublesome vibrations that affect the accuracy of your analytical and micro-balances.

Our Balance Bench comprises of a heavy duty steel support frame constructed from 40mm x 40mm x 3mm thick steel box section, with all joints fully welded. The four support legs are fitted with rubber mounting feet in order to reduce vibration being transmitted from the floor. The frame is epoxy powder coated in a choice of colours.

The Balance Bench top is manufactured from a solid 30mm thick granite block with a ground and polished face. The top is supported on the steel frame using anti-vibration mounts.

Our Balance Bench can be supplied as a stand-alone unit or as an integral part of the laboratory benching system, isolation between the normal work surface and the balance bench is provided by forming a cut out in the bench top 10mm larger than the granite block.
Height adjustable benches:
Height adjustable benches provide 300mm of stepless height adjustment from 640mm up to 940mm, and are available with either hand crank or electronic operation.

The powder coated frames are constructed from a range of medium to heavy gauge mild steel tubular sections, to create a rigid and robust solution to the increasing demand for height adjustability and DDA compliance within the modern work place.

The frames are available for tables from 800mm to 1800mm wide and from 600mm to 800mm deep, and are supplied with the work surface of your choice.

Each leg frame incorporates a precision case hardened gearing mechanism, capable of exerting a lifting force of approx. 80kgs this translates into a "safe working load" of 120kgs per bench, assuming the load is evenly distributed.
Freestanding laboratory benches:

Our standard range of free standing laboratory benching is constructed using epoxy powder coated support legs linked together with span rails.

The leg frames are constructed from 50mm x 25mm x 1.5mm thick material and the span rails from 51mm x 38mm channel section. Each leg is fitted with a height adjustable foot to allow for levelling of the table. The work surface is secured to the steel framework.

To produce a mobile table we use 2 x free rolling castors and 2 x braked castors instead of height adjustable feet.

Additional /optional items include:
• suspended storage units
• above work surface shelving
• below work surface shelving
• electric sockets
Educational range of free standing tables:

Our standard free standing table comprises of a 1200mm x 600mm work surface attached to a sturdy steel support frame. The steel frame is manufactured from 32mm x 32mm x 1.5mm thick steel square box section and includes a low level stabilising cross bar. All the joints are fully welded before an epoxy powder coated paint finish is applied. Each leg is fitted with an adjustable foot to allow for levelling the table on uneven floors.

Available Work Surfaces

- **Solid Grade Laminate** - 16 or 20mm laboratory grade chemical resistant Trespa. Available in wide range of surface colours with a black core and polished edges

- **Solid Surface** - Corian or Velstone. Available in a wide range of colours

- **Melamine /Laminate** - Standard melamine or laminate faced 18mm MDF with PVC lipped edging. Available in a wide range of colours with matching or contrasting PVC edging colour

- **Natural solid wood** - IROKO, Beech or Oak 27mm thick solid timber worktops sourced from sustainable sources. Available with lacquered or oiled finish
**Work surface - Trespa Athlon:**

Trespa® Athlon® offers an unrivalled performance in parts of laboratories where chemical resistance is not as critical. It is extremely impact, scratch and wear resistant and not adversely affected by moisture.

Trespa® Athlon® is a decorative high-pressure compact laminate (HPL) with a melamine surface, engineered for lasting good looks in the most demanding interior applications. The underlying technology transforms wood-based fibres with thermosetting resins, under high pressure and at high temperatures, into robust panels that meet the most exacting specifications.

**Scratch and wear resistance:**
With its special surface construction, Trespa® Athlon® delivers excellent scratch resistance and overall durability. Even under heavy-duty conditions, the panels retain their appearance for a long time. Trespa Athlon® is highly resistant to wear, making it ideal for installation where severe use and frequent cleaning are expected.

**Moisture and mould resistant:**
When installed properly, Trespa® Athlon® resists moisture and remains impervious to mould or rot. The panels are manufactured using specially formulated thermosetting resins designed for resistance against wetness and related degradation.

**Low Maintenance:**
Trespa® Athlon® panels are robust and non-reactive, so no coating or protective cover is required. The closed surfaces of dense HPL practically eliminate dirt accumulation, keeping Trespa® Athlon® smooth and easy to clean.

**Solid and Sturdy:**
Trespa® Athlon® is an engineered, rigorously fabricated panel product that turns wood-based fibres and resins into a highly resistant, dimensionally stable material. The resulting HPL panels have a homogenous core and are easily machinable and workable, similar to hardwoods.
Work Surface - Trespa TopLab+:

Today’s laboratory demands compliance with rigorous codes and standards. Therefore, selecting the right material for laboratory worktops and furniture is of crucial importance because tests and experiments depend on non-contaminated environments.

Developed especially for laboratory environments, Trespa TopLab+ remains aesthetically pleasing while offering a high standard of hygiene, strength and durability for diverse surroundings such as chemical, analytical and biological laboratories.

Trespa’s underlying technology transforms wood-based fibres with thermosetting resins, under high pressure and at high temperatures, into robust compact laminate panels that meet the most challenging specifications.

Clean surface:
In an environment where hygiene and avoidance of contamination is key, Trespa TopLab+ provides an ideal choice. Thanks to its unique closed surface composition, the products show significantly low dirt pick up, are impervious to mould and rot, and are resistant to non-abrasive organic cleaning solvents – thus making the product easy to clean and disinfect.

Chemical resistance:
Used extensively in a wide variety of laboratories worldwide, including chemical, analytical, microbiological and educational laboratories, Trespa TopLab+ is resistant to a large number of aggressive chemicals as identified by SEFA (Scientific Equipment and Furniture Association) and PSI (Professional Services Industries), if cleaned within 24 hours.

Antimicrobial performance:
Trespa TopLab+ has inherent antibacterial properties without the addition of microbial additives. An independent test by British Industrial Microbiological Services Ltd. (IMSL) shows an almost complete elimination of certain bacteria after 24 hours.
Work Surface - Epoxy Resin:

Epoxy Resin is the modern laboratory benchtop material that offers a superb combination of features and benefits. It is durable, extremely chemical and stain resistant, mechanically strong, easily cleaned and decontaminated and exhibits good fire resistance and fire propagation properties.

It is a 15mm thick, solid material that cannot delaminate, and has the same properties throughout its entire thickness. It is moulded into a wide range of components of different sizes to cater for the most exacting of laboratory specifications, and is available in a range of subtle and aesthetically pleasing colours.

Worktops are supplied at a nominal thickness of 15mm to provide good mechanical strength whilst remaining manageable when handling during site fitment.

Where joints are required, worktops are supplied with a tongue-and-groove system to ensure tight, level site joints. All joints are made with a colour matched chemical resistant epoxy resin grout/adhesive.

Epoxy Resin worktops can be fitted with a number of colour matched edging profiles to provide containment of spillages. All edgings can be supplied loose for fitment to other materials.
Work surfaces - Corian:
Corian® is a solid surface material made from 1/3 acrylic resin and 2/3 mineral filler. Typically 13mm thick set onto an MDF or chipboard substrate. Corian® is a non-porous material. Naturally resistant to mould, bacteria and mildew, Corian® surfaces have been certified by an independent laboratory as a hygienic material, according to the international norm DIN EN ISO 846.

Joints:
Joints are inconspicuous and unobtrusive providing a seamless worksurface. Due to the level of pigment in the material, joints can be blended to insignificance.

Thermal expansion:
Due to thermal expansion Corian® can expand up to 1mm per metre. A gap of at least 3mm should be left at each end of the worktop when fitted and filled with decorators caulk.

Overhangs and supports:
Any overhang extending more than 300mm should be supported.

Sink Cutouts:
Sink cutouts must be placed a minimum of 80mm from the worktop front edge. This is required under terms of the product warranty.
If a waste disposal unit is fitted to an undermounted sink after installation, additional support will be required, otherwise your warranty may be invalidated.

Upstands:
There are two types of upstand available.
Square Corian® upstands are fixed on site, with Corian® glue or silicone.
Coved Corian® upstands are manufactured and fixed in the factory.

Scratches:
Corian® is scratch resistant but not scratch proof. Dark, heavily pigmented colours will show scratches, dust and ordinary wear and tear more readily than lighter, textured forms.

Staining:
While most tough stains can be buffed away, a level of care and maintenance is required, as spills should be cleaned up immediately.

Repairable:
Corian® surfaces can easily be repaired. Using an ordinary abrasive cleaner and a scouring pad the surface may be fully restored to its original appearance.
Wall Cupboards:

The wall cupboard carcass is produced from 18mm Melamine faced MDF with matching 2mm PVC edge lipping. The backs are 6mm melamine faced board housed in all round. A 60mm stiffener rail is fitted to the underside of the cabinet to strengthen the base.

Wall cupboards are fitted with a Melamine faced MDF shelf, supported on height adjustable shelf supports with a recommended maximum loading of 20 kilos (subject to type of wall they are fixed to).

The wall cupboards are available with either solid doors to match the carcass or double glass sliding doors.

Available options:
Standard wall cupboard size is 640mm high x 355mm deep x 1000mm wide including one shelf
Standard wall cupboard size is 798mm high x 355mm deep x 1000mm wide including two shelves
Standard wall cupboard size is 984mm high x 355mm deep x 1000mm wide including two shelves
Mobile under bench storage units:

The mobile type range of under bench storage units are produced from 18mm melamine faced MDF with matching 2mm PVC edge lipping. All storage units are fitted with 50mm diameter castors, the front castors are lockable.

The door and draw fronts are constructed from 18mm melamine faced MDF with 2mm thick PVC lipping and hung on fully adjustable and concealed hinges with 170 degree opening. Drawer boxes are manufactured with coated steel sides incorporating steel tracks with nylon rollers and integral restrainer. Backs and bases are 18mm melamine faced MDF.

The storage units are fitted with PVC 'D' type handles as standard.

Internal shell:
Cupboards come complete with 1 x half depth height adjustable shelf, produced from 18mm melamine faced MDF with matching 2mm PVC edge lipping.
Full depth shelves are available if required.

Double
Width = 1000mm
Height = 820mm
Depth = 515mm 0/a

Cupboard
Cupboard
Cupboard

Two Drawer Unit
One Drawer Unit

Three Drawer Unit
Four Drawer Unit

Single
Width = 500mm
Height = 820mm
Depth = 515mm 0/a

Cupboard
Cupboard
Cupboard
Cupboard
Three Drawer Unit
Four Drawer Unit

Tray Units
Width = 358/704/1040mm
Height = 820mm
Depth = 495mm 0/a

One Column
Two Column
Three Column
Tray Unit
Tray Unit
Tray Unit

Tray units are available with or without doors
Reagent Shelves:

These are the shelves that would typically be fixed to the laboratory benching. Usually these would be located on the centre of peninsular or island type benches, but can also be used single depth benching.

Reagent shelves are available in a number of formats, and are normally manufactured using either 18mm melamine faced MDF with 2mm PVC lipping or laboratory grade Trespa. They are typically either single tier fixed position shelf or 3 tier double sided height adjustable. However we are able to produce bespoke designs to meet specific requirements.

Options include:

- Steel support frame fixed position
- Aluminium frame height adjustable
- Trespa / MFMDf fixed position
- Service void
- Service riser / dropper
- Glass / perspex / Trespa dividers
- Storage cupboards instead of shelves
Tall Storage Units:

The standard range of tall storage units are produced from 18mm Melamine faced MDF with matching 2mm PVC edge lipping.

The door and draw fronts are constructed from 18mm melamine faced MDF with 2mm thick PVC lipping and hung on fully adjustable and concealed hinges with full 170 degree opening. Depending on the unit selected, either, 1, 2 or 4 doors are used.

Drawer boxes are manufactured with coated steel sides incorporating steel tracks with nylon rollers and integral restrainer. Backs and bases are 18mm melamine faced MDF.

The storage units are fitted with PVC 'D' type handles as standard.

Configurations available:
Standard tall cupboard (5 x internal shelves)
Standard trays unit (accepts the full standard range of Gratnell trays)
Cupboard/drawer combination
Cupboard/tray combination

Cupboard/drawer combinations units are manufactured in widths of 500mm 1000mm.

Cupboard/tray combination units are manufactured in widths of 375mm or 735mm and 1080mm
Door and drawer front colours:

The doors and drawer fronts of our storage units can be manufactured in the colours below.

The edges of the doors and drawer fronts are finished with either a matching or contrasting 2mm PVC edge lipping.
CoSHH testing for fume cupboards and LEV systems:

In addition to the commissioning test carried out when your fume cupboard or LEV system was installed, the system must be thoroughly examined and tested at intervals of no more than 14 months (often referred to as an Annual test or a CoSHH test).

The purpose of the annual test is to thoroughly examine and inspect all parts of the system in order to assess for wear and any possible likely future failure of any components, as well as to confirm the design parameters specified during the original commissioning of the system are still being achieved. Therefore it is not possible to undertake the annual test in the absence of the original commissioning report.

It is recommended that the annual report includes comments on the way the system is being used by the operators.

If you do not have the original commissioning documentation for your existing or new LEV system it is unlikely to comply with the latest legislation.

Simple face velocity measurements on their own would probably not be acceptable to prove system performance at commissioning stage.

Our comprehensive test includes:
- Measuring the face velocity
- Filter saturation test where applicable
- External visual inspection of fume cupboard / LEV and associated components
- Full written report on condition of the fume cupboard / LEV
- Issue of certificate

HSG258 details the level of competence and the qualifications required by designers and testers of LEV system.

Remember failure to comply with the legislation is an offence under the Health & Safety at Work Act 1974.
Designing an LEV / Extraction system:

The design of the extraction system for an LEV system is critical and is very different to that of a normal ventilation system in that designers of general ventilation systems would normally try and keep duct sizes large enough to ensure air velocities are low in order to minimize noise and losses etc.

In an LEV system it is imperative that the duct velocities achieve specified minimum values to prevent dust settling from the air flow or fumes condensing out to form liquids within the duct.

These high duct velocities mean that in many cases, LEV extraction systems operate at much higher pressures than general ventilation systems and therefore the materials from which the ducting is manufactured may have to be different.

For instance normal spiral wound galvanised ducting is not usually suitable as it has high losses at the higher velocities.

For ducts carrying particulate matter, the thickness of the steel from which the duct is constructed would normally have to be increased to prevent holes forming at the rear of bends due to abrasion. Particulates that settle out from air flows can cause blockages in the system and in large ducts this can increase the weight of the duct to a level where the supporting brackets cannot hold the additional weight and may fail allowing the ducting to fail.

Vapours such as solvents that condense within ducts may create explosive or flammable environments.

The design of an LEV extraction system should only be undertaken by a designer with suitable qualifications and knowledge of LEV systems.

In order to comply with the latest Health and Safety Executive regulations, all systems should have a fully documented design manual which should include such details as:

- The specific substance or hazard the system has been designed to control including its form, the quantity involved and the process.
- The WEL (Work Place Exposure Limit) value for that substance
- The exposure limit the LEV system has been designed to achieve
- Positions in which any extraction arm can be positioned to work effectively
- Duct velocities, face velocities, flow rates etc for the system
- Any restrictions on the use of the system.

In addition to the design manual, there should be a comprehensive commissioning document which shows that when installed, the system fully met the design specification and that the specified exposure limits have been achieved. This would normally be shown by quantitative measurements such as air sampling or qualitative measurements such as photographs of dust clouds using a Tyndal beam lamp or similar.

The commissioning engineer should measure and record in the commissioning report the duct velocities in all parts of the system to confirm that they meet the minimum required values.

The document should also detail the training given to operators of the system and any observation of the way the system was being used by the operators.
Ducted Fume Cupboard range:

A Fume Cupboard is a specific type of local exhaust ventilation device (LEV) that is designed to limit exposure to hazardous or toxic fumes, vapours or dust.

Our comprehensive range of Fume Cupboards are designed, manufactured and installed to meet the requirements of B.S. E.N.14175 and are available in bench mounted, walk in / full height and mobile formats.

Our standard widths are 1000mm, 1200mm, 1500mm, 1800mm and 2000mm however bespoke sizes and designs can be produced.

The outer carcass is fabricated from zintec mild steel, which is powder coated in a textured matt white (RAL 9016) epoxy paint. A comprehensive range of work surfaces are available including solid grade laminate (Trespa), solid epoxy resin, fully welded polypropylene or 316 grade stainless steel.

The 6mm toughened glass sash is counter balanced on slim-line weights running on corrosion resistant nylon pulleys. Sash stops are fitted at 500mm and 25mm. To ensure a constant uniform flow rate at different sash heights, the fume cupboard is also fitted with a front bypass grille.

Internally the fume cupboard benefits from 55W fluorescent low energy light fitting, and a back baffle which is easily removable for cleaning and maintenance purposes.

The fume cupboard can be supported on a powder coated mild steel frame or laminated storage cupboard. Solvent and Flammable cabinets that fit under the fume cupboard are also available.

Fume cupboard services are fitted to the users requirements and specification and include:

- Cold Water. (Range of sinks and drip cups etc)
- Gas Outlets
- Electrical socket outlets.
- Service control valves are located on the front stiles.
Re-circulating / filter type fume cupboard:
The air flowing through a re-circulating (filter type) fume cupboard picks up contaminants released within the work chamber and then passes through a Pre filter, carbon filter and if required HEPA filter which absorbs the majority of the contaminants before the air is discharged back into the workroom.

Because filtered air is returned to the room, no demands are required of the HVAC capacity for make-up air.

Re-circulating fume cupboards are often chosen to avoid the high fume exhaust system and installation costs of conventional installed ducted fume cupboards.

Our range of re-circulating fume cupboards are all 781mm high and are available in widths of:
- 610mm
- 914mm
- 1219mm

Specific filters are available for the following substances:
- Solvents
- organic chemicals
- in-organic chemicals
- acids

Re-circulating / filter fume cupboards are subject to the to similar requirements for the safe use, positioning, maintenance and testing regimes of a ducted fume cupboard plus they require an additional test to confirm the effectiveness of the filters.

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Ducting and extraction systems.

As well as traditional steel ducting our duct fabricators have a wealth of experience in the cutting, forming and thermoplastic welding of PVC and polypropylene ducting and sheet, to DW/154 specifications. Using panel sizing saws, CNC routers, hot wire PVC sheet benders, and the latest hot air welding equipment, we are able to manufacture bespoke ducting / extraction systems.

If required our ducting can be supplied with specialist GRP (Glass Reinforced Plastic) coatings in order to improve on the following properties:
- Fire Rating
- Chemical Resistance
- Resistance to Ultra Violet and Sun light
- Noise transmission
- Rigidity and strength of the ducting

To complement our PVC / Polypropylene fabrication and installation services we stock a wide range of Centrifugal fan units which offer;
- Polypropylene UV resistant casing
- Polypropylene impeller with graphitized nylon hub
- Available in single and three phase options
- Quiet running
- Full performance curves available
- Left and Right handed options

Additional products fabricated in PVC / Polypropylene.
As well as corrosion resistant ducting for Fume Cupboards and LEV systems we offer bespoke fabrication of
- Storage Tanks
- Enclosures
- Transformation sections
- Corrosive tanks
- Rectangular section ducting
General description:

‘Alsident’ extraction arms are designed specifically for the capture and containment of vapours, fumes and dust within the laboratory environment.

The products are available in a variety of configurations to suit most applications and are easily mounted onto the wall, ceiling or workbench.

A dedicated filter unit, or fan and ducting is necessary to form the complete extraction system.

Product range

Extraction arms are manufactured using anodised aluminium with polypropylene joints. The 100mm diameter and the 75mm diameter extraction arms are also available in Polypropylene, for use with more hazardous materials. An anti static version is also available.

Extraction arms are available in, 50mm diameter, 63mm diameter, 75mm diameter, and, 100mm diameter and with variable reaches ranging from 400mm to 2500mm.

A variety of capture hoods is available as attachments to the extraction arms.

Work cabinets for use as both stationary and mobile workstations are manufactured from clear Polycarbonate and are available in various sizes.
Controlled environment rooms:
Controlled environment rooms are manufactured to meet clients specific requirements with regards to temperature control, humidity control and lighting control etc. Typical applications include plant growth rooms, electronic equipment testing rooms, cell tissue growth rooms. In fact any application that requires the temperature, humidity and light levels to be maintained within specific limits. The use of PID controllers and modern electronic systems allow control tolerances of better than +/- 0.2° C with a temperature uniformity of +/- 0.3° C and humidity control of +/- 3%. Rooms can be supplied to either operate at fixed temperatures and humidity levels or can be variable parameter rooms which allow the user to adjust humidity and temperature values within a set range.

Room Construction:
Typically the controlled environment rooms are constructed from modular insulated panels, that connect together by means of “foamed in” cam locking devices. This method of modular construction is very flexible and allows for the rooms to be dismantled and reassembled elsewhere if required. The panels for the walls and ceilings can be manufactured from either food grade coated steel sheets or stainless steel and include 80mm thick injected polyurethane insulation to minimise heat loss and increase efficiency. Floor panels are constructed in the same manner as the walls but using a 1mm thick Alu-Zinc steel sheet skin which can be covered with a floor covering to suit individual requirements.

Control Panel:
The control panel typically incorporates digital displays providing the operator with a real time calibrated temperature and humidity reading for the room. There is also an option to have chart recorders or digital logging to provide 24 hr recording of all the room parameters for validation purposes. As standard preset alarm limits are incorporated to prevent excessive temperatures occurring in the event of a malfunction, the control panel can also provide local or remote visual and audio alarms should the room parameters go outside the set limits. In addition to these standard alarms, the rooms can also be designed to include other sensors, such as low oxygen level alarms to protect personnel working within the rooms.