



Guardtech
cleanrooms

CLEANCUBE

MOBILE LABORATORIES

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www.guardtechcleanrooms.com



CLEANCOBE by Guardtech Cleanrooms is a range of mobile Cleanroom & Laboratory solutions for rapid deployment situations where a controlled environment is necessary. Ranging from converted Portable Modular Buildings, to Shipping Containers to 7.5 Ton Trucks and 3.5 Ton Luton Box Vans, the CLEANCOBE range utilises existing portable solutions, cleverly configured to maximise every mm of useable space. Internally fitted out to the same high specification as state-of-the-art static Cleanrooms & Laboratories with electrical and mechanical installation, fully configured to the needs of the end-user and the demands of the application. Supported with detailed technical information including drawing packs, operation & maintenance manuals, 3D Models and renders.

COMMONLY USED AS:

- Bio-Safety Laboratories (BSL 1, 2 & 3)
- Covid-19 Testing Stations
- Covid-19 Diagnostic Laboratories
- Temporary Cleanrooms (ISO 5, 6, 7 & 8)

INTERNAL FIT-OUT OPTIONS:

- H14 HEPA Filtration (Supply/Exhaust)
- Temperature & Humidity Control
- 13-amp & 3-Ph power outlets
- Positive & Negative Pressurisation



BASE SPECIFICATION

Prior to Cleanroom/Laboratory Conversion

SHIPPING CONTAINERS



20ft/40ft High Cube Tunnel tainers, all Cor-Ten steel construction, 2 locking bars on each door, 2 sets of double steel doors, 2 forklift pockets each side and 28mm marine ply deck. CSC plated and re-certified after modifications to allow for transport via International standard shipping cargo network or Euro road network.

Maximum Internal Dimensions:

20ft: 6m (L) x 2.2m (W) x 2.7m (H) GW 30 Ton

40ft: 12m (L) x 2.2m (W) x 2.7m (H) GW 30 Ton

BOX VANS



3.5t/7.5t Box Van, GRP body construction, rear roller shutter or barn doors, ply board 3-seater front cab. 3.5ton can be driven on a standard UK license, 7.5ton requires a specialist license and a tachograph will also need to be installed and operated.

Maximum Internal Dimensions:

3.5t: 4.5m (L) x 2.2m (W) x 2.7m (H) GW 3.5 Ton

7.5t: 5.7m (L) x 2.2m (W) x 2.4m (H) GW 7.5 Ton

MODULAR BUILDINGS: Single Bay



Modular Buildings constructed from hot rolled steel ring beam incorporating galvanised steel floor joists, steel corner columns and steel lattice roof beams. Roof decking 15mm tongue & grooved timber fitted with Fatra Ecopro PVC fire rated membrane, soffit roof construction and plastic uPVC rainwater goods.

Timber wall studs clad in plastisol coated steel exterior finish. Insulation provided by Ecobrite Foiltherm and 90mm fibreglass insulation. Loading: 5Kn/m² floor, 0.75Kn/m² roof. End to end and side by side module (bay) linking. UPVC or powder coated aluminium windows and standard steel multi-point locking doors of UPVC or powder coated steel.

MODULAR BUILDINGS: Multi Bay



Maximum Internal Dimensions:

Single Bay: 4.5m (L) x 2.2m (W) x 2.7m (H) GW 3.5 Ton

Multi Bay: Can be any number of single bays connected together or stacked to create desired layout.

INTERNAL FIT-OUT

Structural Material Options, Mechanical & Electrical Specifications



MODULAR PANELS

Powder coated CR4 mild steel panels with Polyisocyanurate PIR insulated core, interlocking joints, 50mm thickness to form walls and ceiling. Highly durable, cleanable, chemically resistant, silicon sealed.



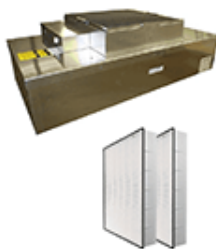
DOORS

Powder coated CR4 mild steel door leaf with 45mm Dufaylite insulated core, flush mounted vision panel and stainless-steel fixtures & fittings. Aluminium wrap around frame. Interlocked.



LED LIGHTS

Powder coated steel LED light units, flush mounted into the ceiling panels with drop down hinged diffuser. Also available as surface mounted aluminium LED batten luminaires for laboratories.



FILTRATION

Fan Filter Units (FFU) with H14 HEPA filters and G4 pre-filters, provide 1,000m³/hour of filtered air. HEPA filtration can also be placed on the exhaust to provide BSL-3 compliance.



AIR CONDITIONING

Temperature control provided by VRF split system serving a plenum for Cleanroom Installations or wall mounted recirculating units for laboratory installations. Humidity control can also be provided via upflow units or separate desiccant wheels. External condensers can be contained in attached plant rooms or mounted on the exterior of the CleanCube.



FLOORING

Homogenous Vinyl floor reinforced with cross linked polyurethane, UV cured, hold welded joints. Coved 100mm up the wall over underlay former and capped, also available anti-static vinyl, copper grounded.



RAPID RISE DOORS

PVC door with stainless steel or anodized aluminium frame and drum cover, contactless motion sensor activation. Rapid open & close speeds, interlocked with break glass & status indicators.



POWER CONNECTION

A Safety Isolation Transformer on all CleanCubes provides the mobile unit with independent grounding from the connected power source. 32-amp male hardwired plug exterior mounted.



ELECTRICAL

Stainless steel or white plastic 13-amp sockets, mounted flush or in 3-way PVC compartment trunking. CAT6 Network Sockets and 16-amp or 32-amp 3 Phase sockets also available.



GAS SERVICES

Compressed Air and Nitrogen can be provided via compressors and generators housed directly within the cleanroom or laboratory or in a dedicated enclosed plantroom. Alternatively pipework, point of use fittings, regulators and hook-up connections can be put in place for onsite connection to cylinders.

FURNITURE & EQUIPMENT

Standard & Bespoke options available



WORKBENCHES

Grade 304 or 316L Stainless Steel frames made from 50mm box section with a Trespa or Stainless Steel worksurface. Framework on levelling legs with support bars on 45° diagonal offset to reduce ledges, available with upstands.



LAMINAR FLOW WORKBENCHES

Vertical or Horizontal Laminar Flow Workbenches are H14 HEPA filtered work stations that provide product with an upgraded air classification, manufactured from powder coated steel with PLC controller and LED lights.



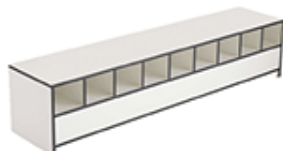
CABINETS

Cabinets manufactured from Trespa or grade 304/316L Stainless Steel, available with a range of door and drawer configurations, stainless fixtures and fittings, available on casters or levelling legs.



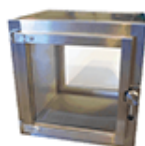
SINKS

Self-contained Stainless-Steel sinks with container fed hot & cold water supply and separate drainage vessel, motion sensor activated tap, soap & towel dispenser attached. Alternative mains supply/drainage sinks also available.



STEPOVER BENCHES

Available 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.



TRANSFER HATCH

Grade 304/316L, Powder Coated Steel or Polypropylene transfer hatches, electro-magnetically or mechanically interlocked with clear vision panels and seamless welds for contained product transfer. Also available as Trolley Hatch.



BIO-SAFETY CABINETS

Class III Microbiological Safety Cabinets offer the highest level of operator, product and environmental protection from infectious/biohazardous aerosols. Suitable for microbiological agents assigned to biosafety levels 1, 2, 3, or 4.



NITROGEN GENERATORS

A reliable and efficient alternative to conventional high-pressure cylinders, N2 generators have in-built compressors and convert ambient air to N2 process gas at a maximum purity of 99.9995% at a maximum flow rate of 6 litres/min.



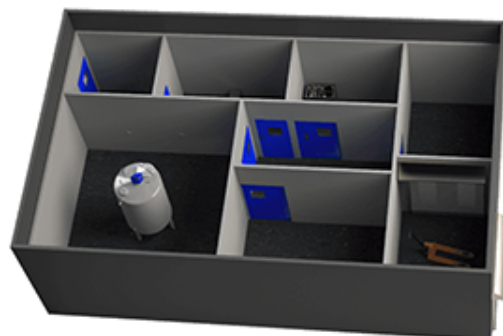
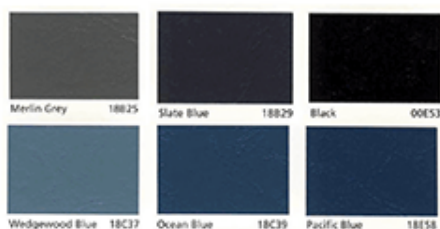
CLEANCUBE MODULAR BUILDINGS



CLEANCUBE Modular Buildings are an Ideal solution for UK & Mainland European applications, offsite construction with onsite assembly drastically minimises the construction works required onsite, allows utilisation of exterior spaces and the modular nature presents no restrictions on sizes and layout configurations. Modular buildings allow for unrestricted cleanroom design and extensive mechanical & electrical fit-outs.

Standard Modules: A strong flexible modular system with standard module lengths of 7.3m (24ft), 9.75 (32)ft and 12.2m (40ft) in a fixed width of 3.05m (10ft) wide. Units can be stacked end on end and side by side to create clear open plan or multi-storey areas. All steel construction, flat-sided exterior finish, easy to dismantle, move and re-use. Join multiple modules together to create optimal facility footprint, base units available from stock.

Bespoke Modules: Far greater flexibility is provided with bespoke modules, these are available in variable lengths of up to 12m, widths up to 4.3m and heights of 4.1m. Constructed from the same materials but allowing for more precise facility sizes and room layouts. Slightly longer lead times are applicable to these products.



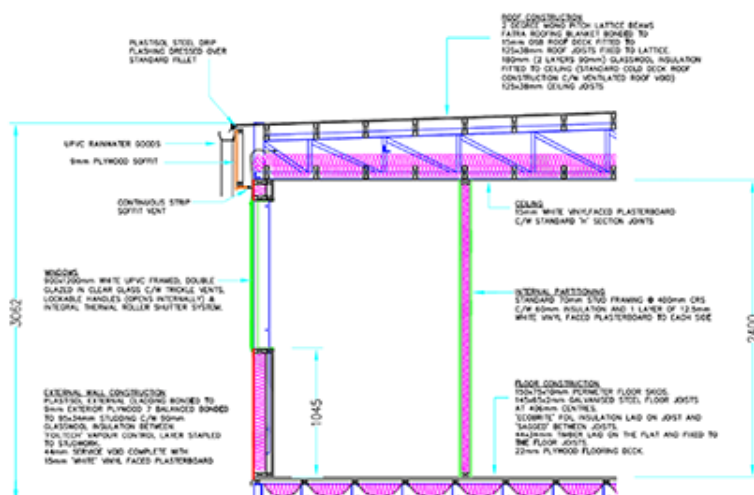
- Length: 7.3m, 9.75m & 12.2m
- Width: 3.05m
- Height: 3.6m

- Length: Variable up to 12m
- Width: Variable up to 4.3m
- Height: Variable up to 4.1m

- Plastisol steel bonded to 9mm ply
- Plasterboard internal lining
- Insulated with 90mm fibreglass
- Fastened to 95 x 34 wall studs

- 3kn/m2 Floor Loading
- Hot rolled steel ring beam
- Galvanised steel floor joists 406mm centres
- Insulated with double Floortherm insulation
- To provide .25Wm2 °C heat loss
- 22mm T&G chipboard flooring

- 0.75kn/m2 roof loading
- Mono pitched or dual pitched roof
- Soffit roof construction with plastic rainwater good
- Through roof ventilation
- Insulated with 180mm Fibreglass
- 15mm OSB T&G roof deck finished with PVC membrane
- UPVC rainwater goods



EN 1990 – Basis of Structural Design (UK Nat Annex)
EN 1991-1-1 – Actions on Structures – Densities & Imposed
EN 1991-1-3 – Actions on Structures – Snow Loads
EN 1991-1-4 – Actions on Structures – Wind Load
EN 1991-1-7 – Actions on Structures – Accidental Actions
EN 1993-1-1 – Steel Structures – General Principles
EN 1995-1-2 – Steel Structures – Hot Rolled Elements
EN 1993-1-3 – Steel Structures – Cold Formed
EN 1995-1-5 – Steel Structures – Plate Elements
EN 1995-1-8 – Steel Structures – Joints
EN 1995-1-1 – Timber Structures – General Principles
EN 1995-1-2 – Timber Structures – Structural Fire Design
Building Regulations for England & Wales 2010 including amendments
BS 6767:Part 1
Timber Designers Manual
British Standards Codes of practice and European Standards



CLEANCUBE
CONTAINERS



CLEANCUBE Containers are an easily transportable platform for hosting a Laboratory or Cleanroom, either for applications where the unit needs to be moved often, or for applications where space is at a premium. Available as 20ft or 40ft high cube, vertical laminar flow and internal head room of up to 2.4m, ISO5, 6, 7 & 8 as well as BSL1,2 & 3 all achievable. Temperature and humidity control, 1-Ph 13-amp and 3-ph electrical power, data, compressed air and gas services, extraction, vacuum, furniture & equipment can all be accommodated and pre-installed.

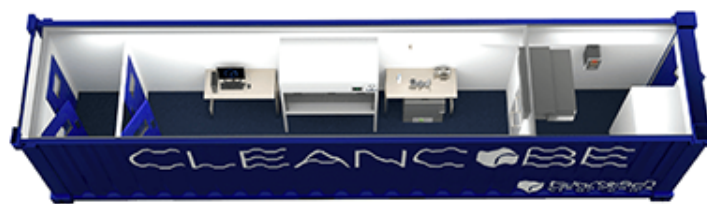
No external modifications are made and no load is imposed on the walls or ceiling of the structure therefore containers can ship via normal cargo methods, decreasing shipping times and saving transportation costs.

External overhead plant decks can ship separately to maximise the internal footprint if bespoke AHU's are required, otherwise the footprint can accommodate a small plant room for some air handling, compressors and other plant.

CLEANCUBE COMMON CONFIGURATIONS



20ft without Airlock



40ft with Personnel Airlock (PAL) & Plant Room

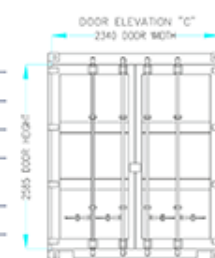


SPECIFICATIONS: 20ft High Cube container

	Length:	Width:	Height:
Outside dimensions	6058 mm	2438 mm	2896 mm
Inside dimensions	5898 mm	2344 mm	2695 mm
Internal door opening		2330 mm	2578 mm
Tare	2320 kg		
Cubic capacity	37.30 m ³		
Payload	28160 kg		

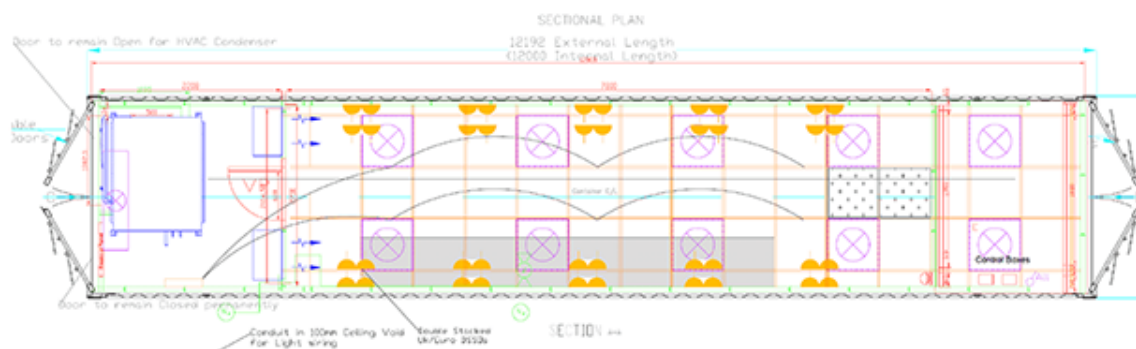
SPECIFICATIONS: 40ft High Cube container

	Length:	Width:	Height:
Outside dimensions	12192 mm	2438 mm	2896 mm
Inside dimensions	12032 mm	2344 mm	2695 mm
Internal door opening		2330 mm	2578 mm
Tare	3950 kg		
Cubic capacity	76.20 m ³		
Payload	26530 kg		

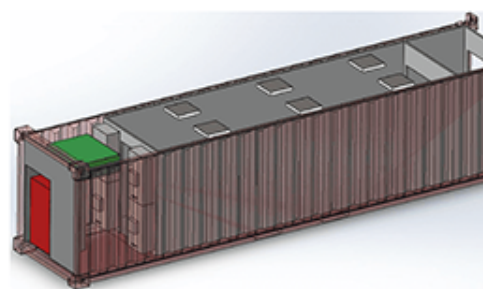
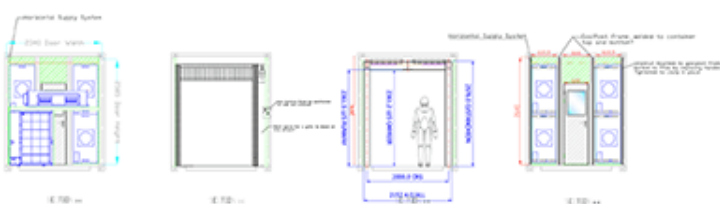


BASE SPECIFICATION

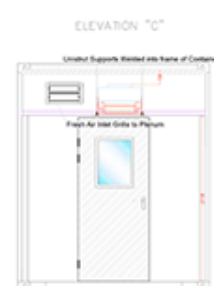
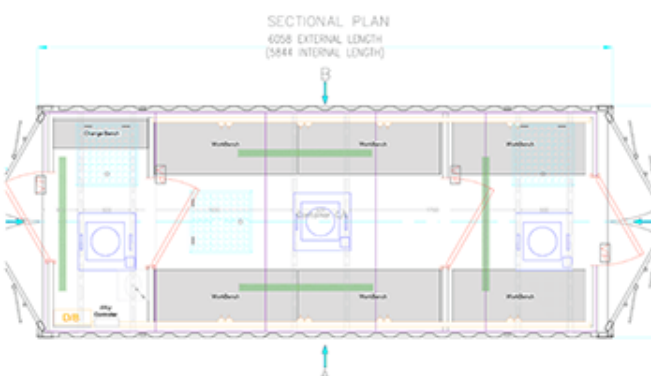
- CSC Plated (Gross Weight) Max 30 ton
- All 'Cor-Ten'- Steel Construction
- 28mm Marine Plywood floor on steel cross members
- Exterior hinged double doors at each end
- Two locking bars on each door with factory fitted lock box
- 2 x forklift pockets on each side
- 4 fresh air vents
- Available in a number of colours
- Can be plated and sign written externally



Example of Horizontal Airflow Cleanroom with VRF Air Conditioning



20ft Vertical Airflow Cleanroom Container Layout





CLEANCUBE BOX VANS

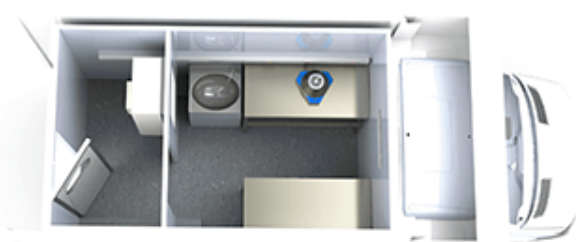


CLEANCUBE Box Vans provide modular cleanrooms and laboratories contained within the standard confines of regular road network vehicles, either as 3.5-ton or 7.5-ton configurations. The body of the vehicle receives an internal structural exoskeleton which provides the framework for the attachment of the insulated steel faced walls and ceiling composite panels, ensuring a rigid and roadworthy structure, with cleanable, compliant surfaces. The floor can be laid as a coved resin or vinyl with ESD properties and doors are made with lightweight aluminium frames and powder coated steel door leaf, on self-closing mechanisms with stainless fixtures and locks. The room can be positively or negatively pressurised with H14 filtered air supply and environmental monitoring systems can be used to track the room performance. LED lighting is provided throughout to provide a minimum of 500 Lux and Air conditioning can be incorporated into the design.

CLEANCUBE COMMON CONFIGURATIONS



Without Airlock



With Airlock



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