

CONTAINMENT ENCLOSURES

CLEANROOMS

CUSTOM DESIGNED SOFT WALL EQUIPMENT

ISOLATION ENVIRONMENTS

HEPA FILTERED WORK STATIONS

QUARANTINE ENVIRONMENTS

BIOSAFETY LEVELS 2, 3, & 4

AIRLOCK

CONTAINMENT

CLEAN

CUSTOM DESIGNED SOFT WALL EQUIPMENT

ISOLATION ENVIRONMENTS

HEPA FILTERED WORK STATIONS

QUARANTINE ENVIRONMENTS

BIOSAFETY LEVELS 2, 3, & 4

AIRLOCKS AIR SHOWERS

CONTAINMENT ENCLOSURES



**bio** | **BUBBLE**

CONTROLLED ENVIRONMENTS | CUSTOM SOLUTIONS

# bio|BUBBLE

Thank you for your interest in bio**BUBBLE**® products and technology. bio**BUBBLE** has over 30 years experience designing custom ultra-clean and containment environments for a wide range of applications. We have projects worldwide, from minor renovations to complete turnkey solutions. We can help you with your project from concept to completion.

**We have the solution to transform your space efficiently & creatively.**

# APPLICATIONS :

LABORATORY RENOVATION

## **LABORATORY ANIMAL HOUSING FOR BREEDING & RESEARCH**

PRIMARY CONTAINMENT FROM BSL/ABSL-2 TO BSL/ABSL-4 LEVELS (P2, P3 & P4)

## **SCID PIG**

PROCEDURAL AREAS

## **CELL SORTERS AND OTHER EQUIPMENT**

QUARANTINE ENVIRONMENTS

## **FOOD SAFETY RESEARCH**

REDERIVATION ROOMS

## **TOXICOLOGY RESEARCH**

SPECIALIZED ANIMAL MODELS

## **HORTICULTURAL RESEARCH**

VACCINE TESTING & PRODUCTION

## **AQUATIC RESEARCH**

IMAGING SUITES

## **FACILITY DESIGN CONSULTING**

**CUSTOMIZED SOLUTIONS FOR YOUR APPLICATION**

## ENCLOSURES: ULTRA-CLEAN AND CONTAINMENT

### p4-5 ARCHITECTURALLY RENOVATED VS FREESTANDING ENCLOSURES

Which design type is right for you?

### p6-7 LABORATORY RENOVATION : SAGE LABS | BREEDING FACILITY

### p8-9 LABORATORY RENOVATION : CINVESTAV | BREEDING & RESEARCH FACILITY

### p10-11 CLEAN ROOM, ISOLATION & BARRIER ENCLOSURES bioBUBBLE Clean Rooms are soft-walled, positive pressure enclosures with 50 – 100 air changes per hour of HEPA filtered air supply. bioBUBBLE Clean Rooms are completely customizable and constructed in any size or configuration to suit the specific needs of your space and research.

### p12-13 CUSTOM CLEAN SOLUTIONS : AUSTRALIAN BIORESOURCES | BREEDING & RESEARCH FACILITY IOWA STATE | CLEANROOMS FOR SCID PIG

### p14-15 NEGATIVE PRESSURE CONTAINMENT ENCLOSURES bioBUBBLE Containment Rooms are soft-walled negative pressure enclosures with 50- 100 air changes per hour of HEPA-filtered exhaust. bioBUBBLE Containment Enclosures are completely customizable and constructed in any size or configuration to suit the specific needs of your space and research.

### p16-17 CUSTOM CONTAINMENT SOLUTIONS : KANSAS STATE UNIVERSITY | FOOD SAFETY RESEARCH COLORADO STATE UNIVERSITY | BSL-3 TUBERCULOSIS RESEARCH

### p18-19 CUSTOM SOLUTIONS : UNIVERSITY OF AUCKLAND | MIXED-USE VIVARIUM UNIVERSITY OF CALGARY | REDERIVATION FACILITY

### p20-21 BENCHTOP BIOCONTAINMENT ENCLOSURES bioBUBBLE Benchtop Biocontainment Enclosures provide high levels of containment for all BSL-2 and BSL-3 applications. Enclosures are ideal primary containment

solutions for cell sorters, incubators, centrifuges, microscopes, or any benchtop laboratory equipment.

### p22-23 ANTEROOMS/AIRLOCKS bioBUBBLE Anterooms are soft-walled enclosures that operate with dedicated positive or dedicated negative airflows and are customized to suit the needs of your specific application. Anterooms provide a space dedicated to donning and doffing PPE and also isolate individual rooms within a facility.

## SUPPORT EQUIPMENT

### p24-25 BEDDING DISPOSAL UNIT The bioBUBBLE Bedding Disposal Unit is a lightweight, portable unit that draws bedding dust, dander and allergens away from personnel and into the HEPA filter. This filtration greatly reduces airborne particulates, minimizing the opportunity for disease transmission throughout the vivarium.

### p26-27 AIR SHOWER The bioBUBBLE Air Shower supplies a high volume, low-velocity HEPA-filtered air stream to clean microparticles off personnel and materials upon entrance or exit of a controlled environment. This localized area of high filtration serves as a barrier to prevent the transmission of airborne contaminants.

### p28-29 POWER UNIT WITH DIFFUSION HEAD bioBUBBLE Diffusion Heads provide high levels of localized HEPA filtration. These units serve to drastically reduce the presence of dust, dander, allergens and other airborne particulates in heavily populated rooms and high traffic cage wash areas.

### p30 WORK STATION The bioBUBBLE Work Station is a portable, clean or contained environment. Negative Pressure Workstations provide transportable biocontainment and dedicated quarantine for materials or small populations. Positive Pressure Workstations provide clean isolation for small populations or materials. Use as a transport cart or a housing environment.

### p31 RACK COVERS Custom manufactured to fit any size rack, trolley, cart, or other vivarium fixture. Rack Covers are constructed of incredibly strong and durable vinyl coated polyester fabric. bioBUBBLE creates the longest lasting covers on the market.



[CLOCKWISE FROM TOP LEFT] bioBUBBLE (interior) at Kansas State University. Environmentally sustainable vivarium at Australian Bioresources. bioBUBBLE Benchtop Enclosure for a cell sorter. bioBUBBLE Airlock and Bedding Disposal Unit at The University of Otago.



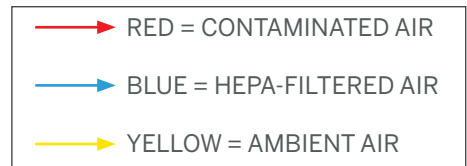
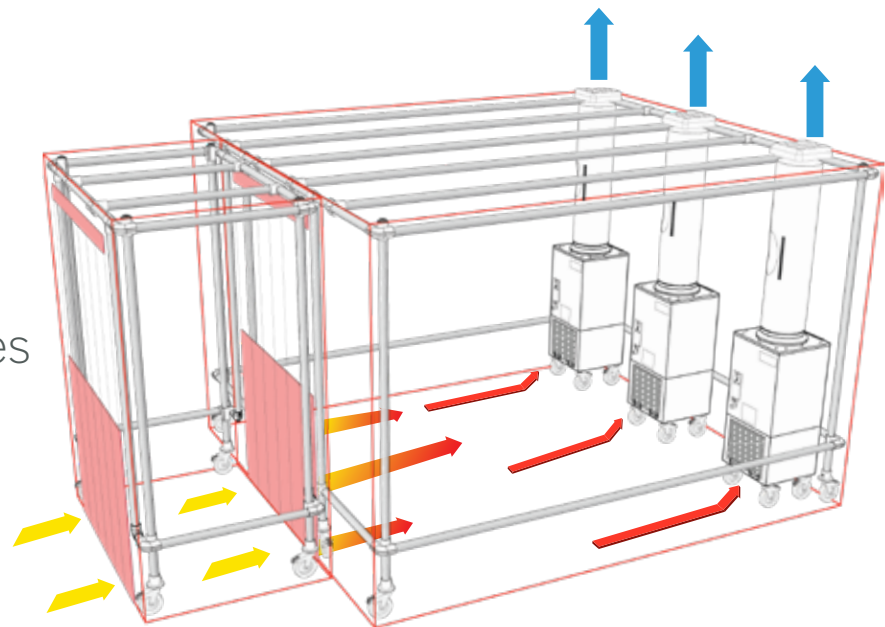
# ARCHITECTURALLY RENOVATED **VS** FREESTANDING ENCLOSURES

bio**BUBBLE**® Clean and Containment Rooms are custom, soft-walled, enclosures constructed in any size or configuration to suit the specific needs of your space and research.

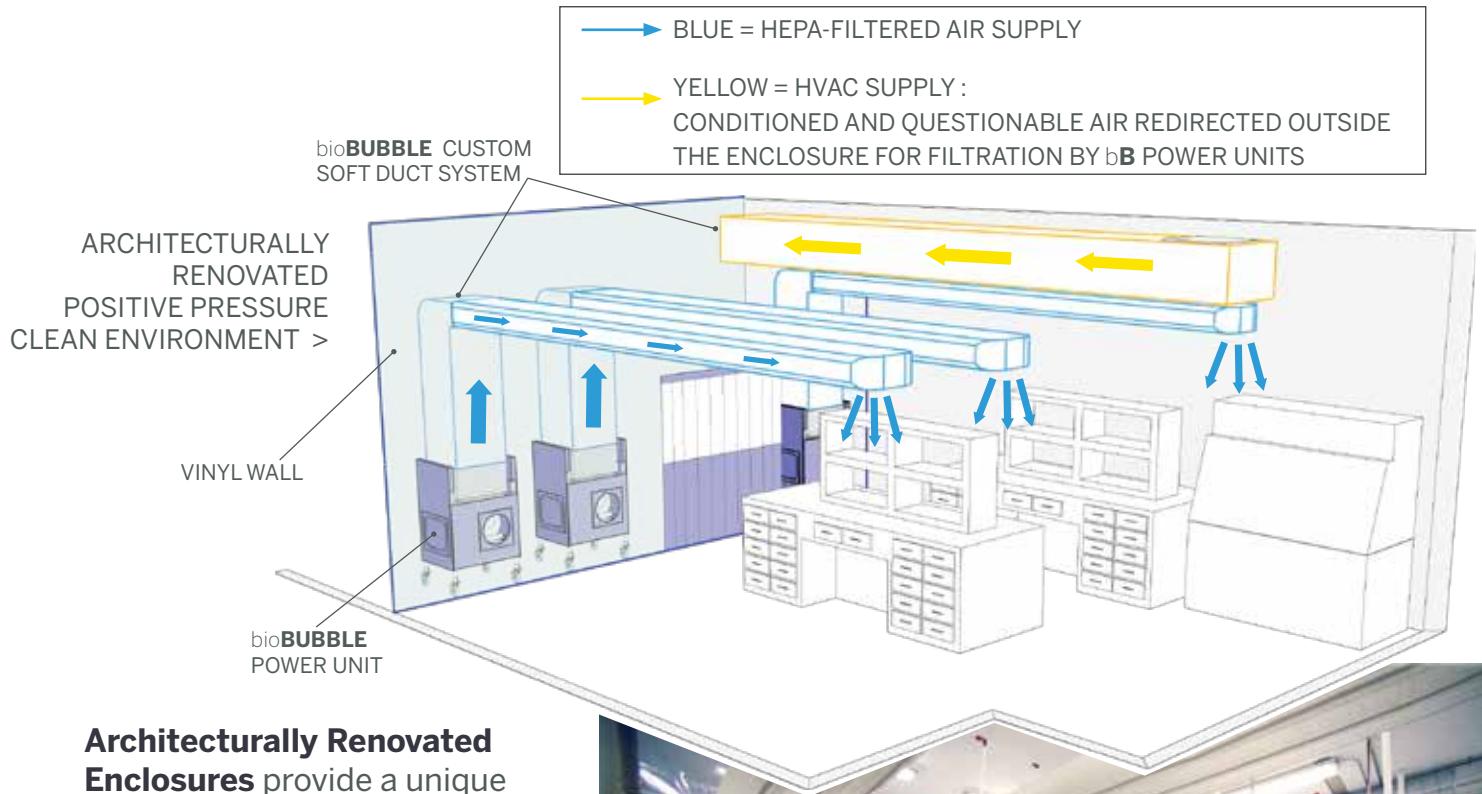
## Two types of designs available:

Freestanding and Architecturally Renovated Enclosures

**Freestanding Enclosures** are flexible, portable, and expandable. Simple design and construction enables equipment to be used as a permanent solution that can also be easily stored or modified as needs change.



< FREESTANDING NEGATIVE PRESSURE CONTAINMENT ENCLOSURE



**Architecturally Renovated Enclosures** provide a unique solution for spaces with architectural challenges. This construction type uses a combination of existing walls with bioBUBBLE soft walls, custom dividers and ductwork to provide HEPA filtration to any space. Architecturally renovated enclosures provide access to existing cabinets, fixtures and workstations while maintaining a clean or contained environment and maximizing floor space.



## WHICH DESIGN TYPE IS RIGHT FOR YOU?

DO YOU NEED ACCESS TO FIXTURES, SHELVES, & CABINETS?

DO YOU UTILIZE BUILT-IN WORKSTATIONS?

CONTACT A bioBUBBLE CONSULTANT TO HELP.

bioBUBBLE® Freestanding and Architecturally Renovated Enclosures provide an economical, long-term solution that will help you quickly transform your valuable space into a world-class research environment.

# LABORATORY RENOVATION

bio**BUBBLE** sales team associates can help you:

**Save Time & Cost**

Simplify Design

**Increase Flexibility**

Achieve a Higher Level of Cleanliness or Containment

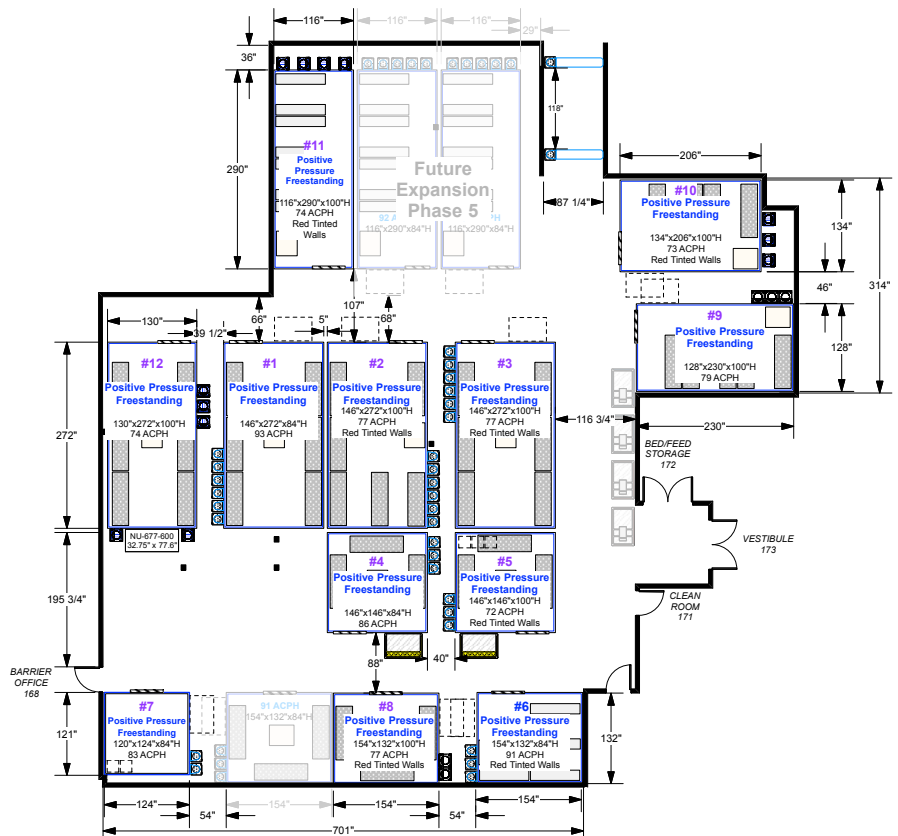


## SAGE LABS

**CHALLENGE** | Expand breeding and research operations for genetically modified animals.

**SOLUTION** | Outfit a reclaimed warehouse space with Ultra-Clean Enclosures to create separate housing environments. This design also incorporates a bioBUBBLE Containment Enclosure for quarantine, Air Showers, and bioBUBBLE soft ducts.

**RESULTS** | A savings of more than 64% compared to hard construction and facility outfit costs.





“

We had explored expanding this space with hard walled animal holding rooms and the cost was estimated at \$5.6 Million.... **We turned our focus toward utilizing bioBUBBLES to both lower cost and provide us the flexibility that we needed as a growing business.** The price tag for our expansion utilizing bioBUBBLES, upgrading our auto watering system, adding a tunnel washer, expanding our lab, adding 5 offices and a conference room was just under \$2 Million.

—DEB KNOERZER, SAGE LABS

”



## CINVESTAV

**PROJECT SUMMARY** | CINVESTAV is a uniquely designed three-story vivarium with the capacity to house over 25,000 SPF/ MPF rodents and an estimated annual breeding production of 35,000 to 50,000 animals of 65 different biomodels.

### FEATURES INCLUDE |

- › **bioBUBBLE** positive pressure, HEPA filtered environments for housing.
- › Custom environments feature hybrid wall attached/ freestanding frames to maximize available floor space and conform to the curved architectural walls.
- › Ultra-clean procedure rooms
- › Negative pressure airlocks at the entrance of the clean and dirty elevators prevent cross contamination from the other levels.
- › Air showers at locker rooms and between zones create air barriers to prevent the transmission of airborne contaminants.
- › Custom soft ductwork distributes HVAC air supply throughout each level.



2016  
TURNKEY  
FACILITY OF  
THE YEAR



CINVESTAV / MEXICO CITY, MX

# CLEAN ROOM, ISOLATION & BARRIER ENCLOSURES

bio**BUBBLE** Clean Rooms are soft-walled, positive pressure enclosures with 50 – 100 air changes per hour of HEPA filtered air. bio**BUBBLE** Clean Rooms are completely customizable and constructed in any size or configuration to suit the specific needs of your space and research. Available in two basic design styles: **Freestanding Clean Rooms** and **Architecturally Renovated Clean Rooms**.

bio**BUBBLE** Clean Rooms are constructed using:

- a modular anodized aluminum framework
- vinyl skin with Velcro®-type connections
- blowers with long lasting, energy efficient, electrically commutated motors
- 99.99% efficient HEPA filters

bio**BUBBLE** Clean Rooms are economical and durable enough to withstand the most demanding research and manufacturing environments.



Some of the very first bio**BUBBLE** enclosures have been in continuous operation, 24 hours a day, 7 days a week, for over 20 years.

# APPLICATIONS CLEAN ROOM, ISOLATION & BARRIER ENCLOSURES

**Animal Housing - Immunocompromised, SPF, Gnotobiotic, Conventional**  
Procedural Space • **Aquatic Research** • Class 100 / ISO 5 Manufacturing  
Processes • **Product Mixing & Preparation** • Toxicology • **Pharmaceutical  
Processing** • **Preparation & Packaging Horticultural Research** • Food  
Processing, Preparation & Packaging  
**Customized Solutions – Call us to discuss a solution for your application.**



<  
INTEGRATED ULTRA-  
CLEAN HOUSING AND  
PROCEDURAL SPACE WITH  
TWO BIOSAFETY CABINETS  
DOCKED TO EXTERIOR OF  
bioBUBBLE CLEAN ROOM

## FEATURES & BENEFITS

**Ultra-Clean Environment [up to class 100/ISO 5]:** bioBUBBLE Clean Rooms provide an ultra-clean environment to control dust, allergens, dander and airborne contaminants. Conditions are created with high levels of HEPA filtration and mass airflow. bioBUBBLE Clean Rooms provide the ideal conditions for housing any species, animal model, or performing any procedural work requiring a controlled environment.

**User Friendly/Comfortable:** Clear vinyl walls facilitate supervision by allowing complete visual access without the need to physically enter the clean room. The clear vinyl also reduces the feelings of isolation and claustrophobia which can occur in standard hard walled laboratories. Communication is improved via visual access, creating a more user-friendly environment.

**Environmental Separation:** bioBUBBLE Clean Rooms provide environmental separation between individual groups, species or studies within the same room or shared space.

**Cost Savings:** bioBUBBLE Clean Rooms reduce costs by 45–50% when used as an alternative to hard walled construction in both new and renovated facilities. In addition, this investment is made in transferable capital equipment rather than a permanent structure.

**Flexible Construction:** bioBUBBLE systems can also drastically simplify building ventilation (HVAC) systems, increasing cost

savings and reducing construction timelines. bioBUBBLE Clean Rooms are mounted on high-quality, 5" hospital-grade casters making them extremely portable and easy to move. Modular designs are also available, providing the benefit of docking multiple rooms together to increase size as needed.

**Installation and Training:** bioBUBBLE offers complete on-site installation and training performed by qualified bioBUBBLE technicians, with little to no interruption in the workflow of the facility.

**HEPA Filtration:** 99.99% on 0.3 micron particles- military std MIL-STD-282/ industry std IEST-RP-CC-034

**Easy to Clean:** Zippered and Velcro® type access points make bioBUBBLE Clean Rooms easy to clean and maintain. Enclosures tolerate all standard sterilants and disinfectants.

**Energy Efficient:** bioBUBBLE Clean Rooms are extremely energy efficient. Power Units use electronically commutated motors for energy savings.

**Options:** Anterooms, multiple door styles, access control system & keypads, pass through boxes, custom docking systems, frame mounted shelving and tables, removable perimeter rodent barriers, ports for ventilated caging and auto watering systems, and heat resistant, opaque, or tinted vinyl.

## AUSTRALIAN BIORESOURCES

**CHALLENGE** | To create a low-cost, energy-efficient breeding and research facility.

**SOLUTION** | Construct a simple building on a rural site to lower the cost of the initial investment. Outfit the building with bioBUBBLE Systems to provide positive pressure enclosures each with approximately 80 air changes per hour of HEPA-filtered air through high efficiency, low noise filtration units. Housing capacity is expandable to a population of 42,000. Vivarium model significantly reduces energy consumption and operating costs and exceeds the efficiency requirements of the Building Code of Australia.



14,000 cage capacity/multiple enclosures subdivide a large open space



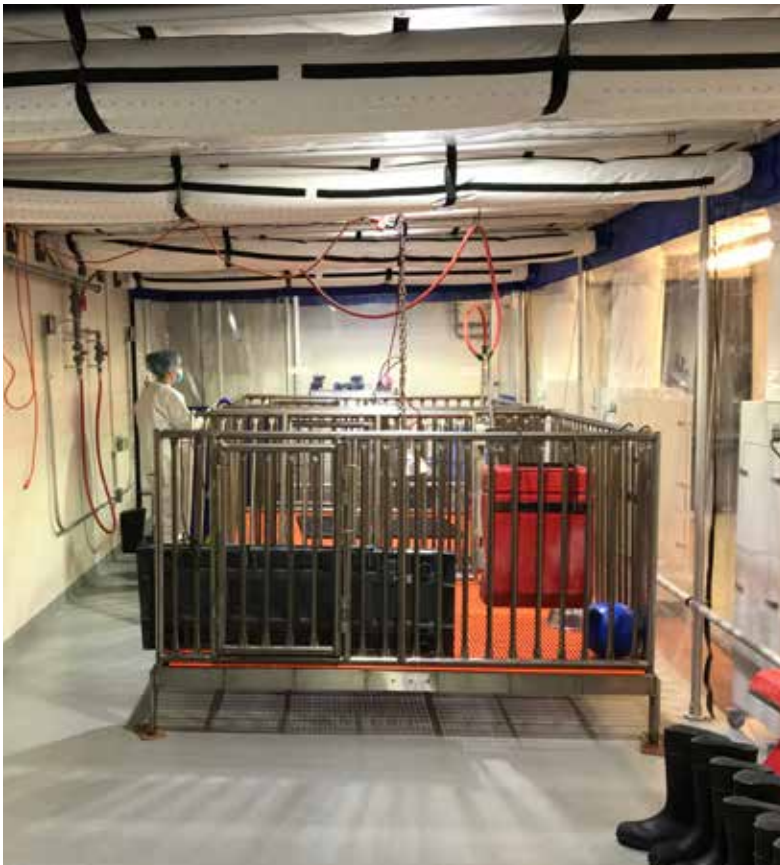
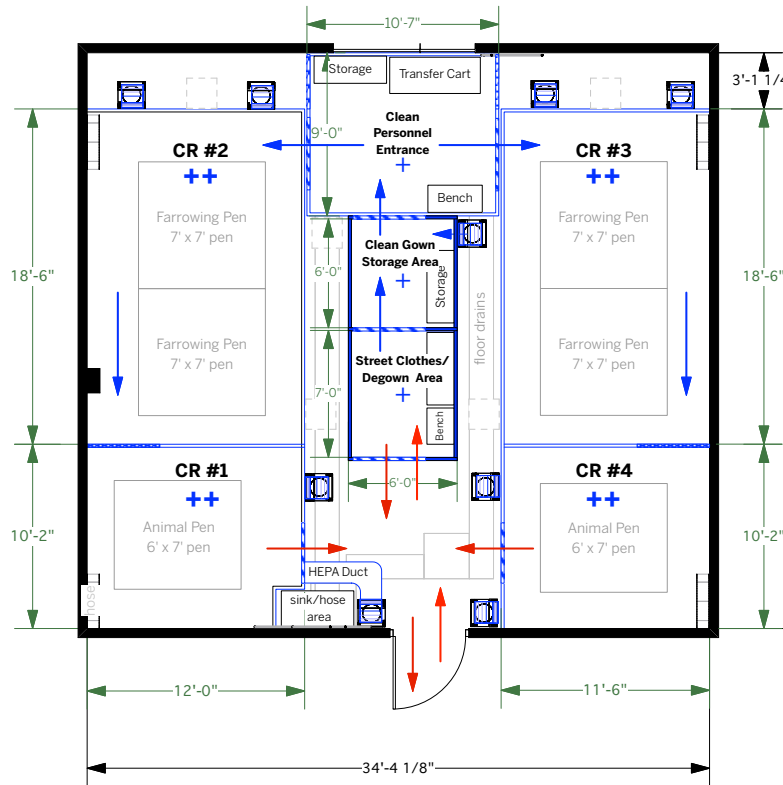
# Cleanrooms for SCID Pigs

## IOWA STATE UNIVERSITY

**CHALLENGE** | How to raise SCID pigs in a clean environment.

**SOLUTION** | Create a clean environment with high levels of HEPA filtration in an old storage area. Multi stage anteroom for personnel and materials entering the clean barrier. Unique architectural renovation design allows for multiple large animal environments, access to auto watering systems and maximizes the usable floor space. HEPA filter unit intakes located near the floor capture the highest quantity of airborne particulates. Internal dividers give flexibility and allow you to adjust the size of the enclosure as needs change. Drains are located outside the clean environment.

**RESULTS** | Minimal renovation costs to convert a storage room into an ultraclean environment for SCID pigs.



# NEGATIVE PRESSURE CONTAINMENT ENCLOSURES

bio**BUBBLE** Containment Enclosures are soft-walled, negative pressure enclosures with 50 – 100 air changes per hour of HEPA-filtered exhaust. bio**BUBBLE** Containment Enclosures are completely customizable, and constructed in any size or configuration to suit the specific needs of your space and research. Available in two basic design styles: **Freestanding Containment Rooms** and **Architecturally Renovated Containment Rooms**.

bio**BUBBLE** Containment Rooms are constructed using:

- a modular anodized aluminum framework
- vinyl skin with Velcro®-type connections
- blowers with long lasting, energy efficient, electrically commutated motors
- 99.99% efficient HEPA filters

bio**BUBBLE** Containment Enclosures are economical and durable enough to withstand the most demanding research and manufacturing environments. Some of the very first bio**BUBBLE** enclosures have been in continuous operation, 24 hours a day, 7 days a week, for over 20 years.



Architecturally Renovated Containment Room



Hybrid Freestanding Enclosure

50 ⇌ 100

Air changes per hour of HEPA-FILTERED exhaust under negative pressure



# APPLICATIONS NEGATIVE PRESSURE CONTAINMENT ENCLOSURES

BSL-2, BSL-3 & BSL-4 applications • **ABSL-2, ABSL-3 and ABSL-4 levels (P2, P3, and P4)** • BSL-3-Ag • Quarantine environments • **Surgical suites or procedural areas** • Isolation of laboratory equipment • **Biocontainment of pollens and plant matter for horticultural research** • **Food safety research**

## FEATURES & BENEFITS

**Superior Containment:** High levels of HEPA-filtered exhaust and mass air displacement provide the best containment of airborne pathogens, contaminated dust, allergens, and other airborne contaminants. The re-circulated HEPA exhaust also provides an added barrier of cleanliness surrounding the containment environment.

**User Friendly/Comfortable:** Clear vinyl walls facilitate supervision by allowing complete visual access without the need to enter the containment environment. The clear vinyl walls also reduce feelings of isolation and claustrophobia, which can occur in standard hard walled containment rooms. Communication is improved via visual access, creating user-friendly environment.

**Environmental Separation/Isolation:** bioBUBBLE Containment Rooms provide environmental separation and isolation of groups, species or studies within the same room or shared space.

**Cost Savings:** bioBUBBLE Containment Rooms, when used as an alternative to hard walled construction in both new and renovated facilities, reduce capital costs by 30% - 45%. This investment is also completely transportable and can be relocated or retrofitted as location or applications change.

**Flexible Construction:** bioBUBBLE Containment Rooms are mounted on high quality, hospital grade casters, making them extremely portable and easy to move. Modular designs are also available, providing the benefit of docking multiple rooms together to increase size as needed.

**Installation and Training:** bioBUBBLE offers complete on site installation and training performed by qualified bioBUBBLE technicians, with little to no interruption of the workflow in your facility.



**HEPA Filtration:** 99.99% on 0.3 micron particles- military std MIL-STD-282/ industry std IEST-RP-CC-034

**Easy to Clean:** Zippered and Velcro®-type access points make bioBUBBLE Containment Enclosures easy to clean and maintain. Enclosures tolerate all standard sterilants and disinfectants.

**Energy Efficient:** bioBUBBLE Containment Enclosures are extremely energy efficient. Power Units use electronically commutated motors for energy savings.

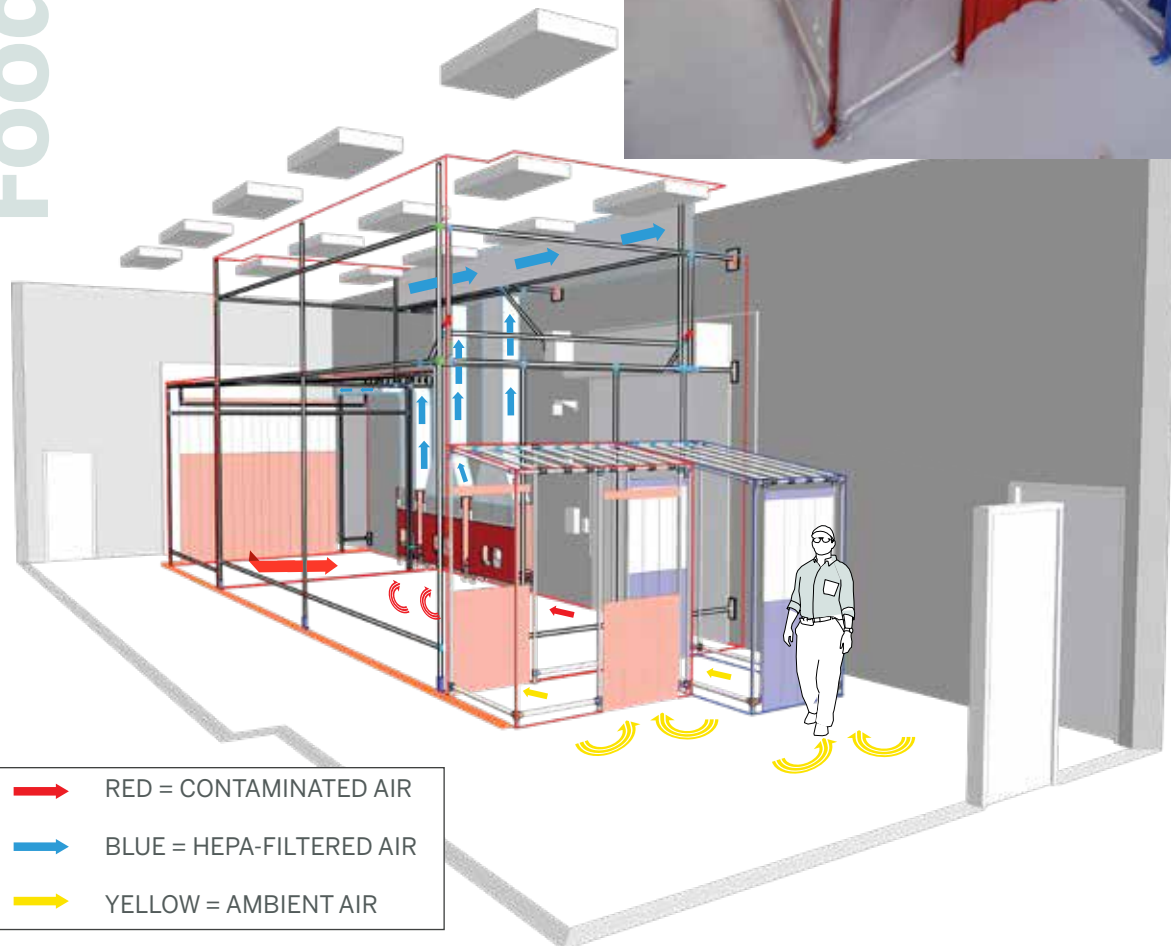
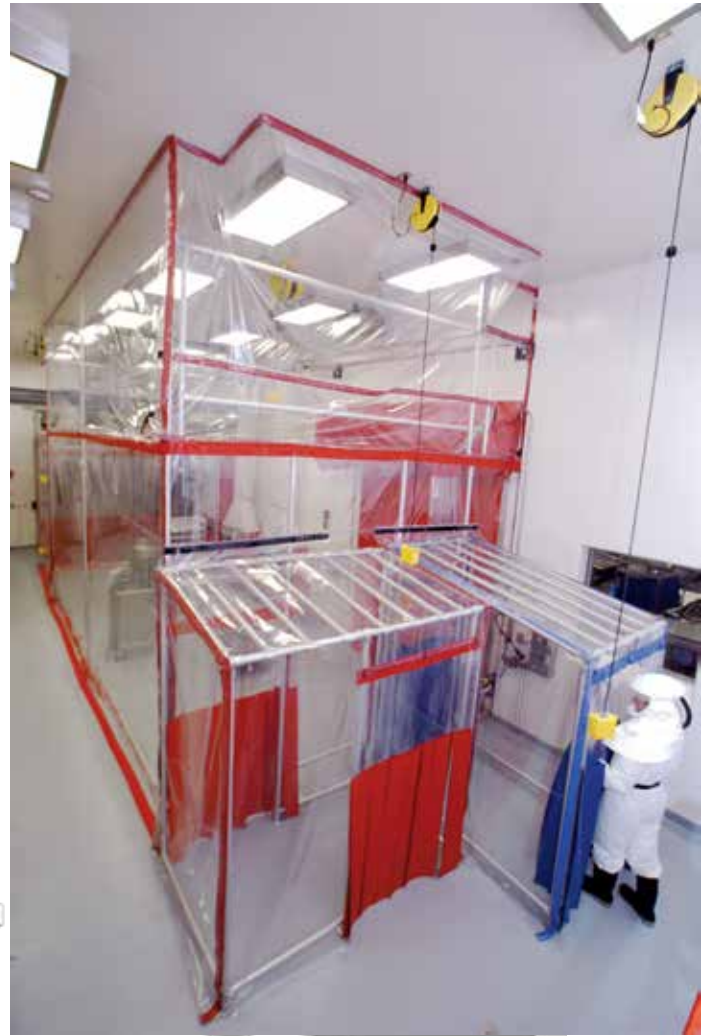
**Options:** Anterooms, multiple door styles, access control system & keypads, pass through boxes, custom docking systems, frame mounted shelving and tables, removable perimeter rodent barriers, ports for ventilated caging, auto watering systems, and heat resistant, opaque, or tinted vinyl.

# Primary Containment - Food Safety Research

## KANSAS STATE UNIVERSITY USDA BSL-3-Ag Facility

**CHALLENGE** | To create a primary containment environment for BSL-3 Ag Research with the ability to handle large equipment and provide liquid containment.

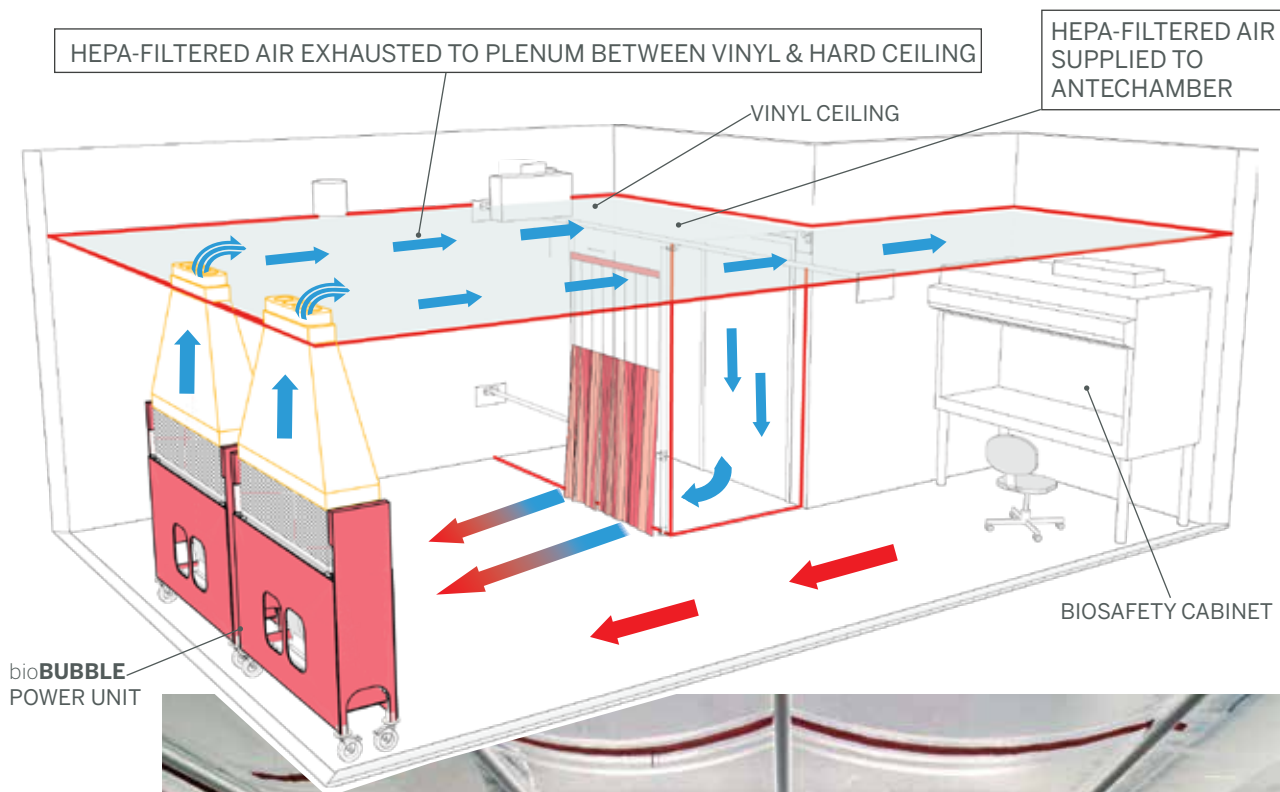
**SOLUTION** | Design and install a customized soft-wall enclosure reaching a height of 17' (5.2m) to accommodate oversized equipment. The enclosure also incorporates sloped ceilings for water runoff from equipment washdown procedures and has sealed vinyl connections and a spill berm at the floor for effluent containment.



# COLORADO STATE UNIVERSITY ABSL-3 Tuberculosis Research Laboratory

**CHALLENGE** | To economically renovate and create a primary containment environment within an existing space that will exceed ABSL-3 research guidelines.

**SOLUTION** | Create an environment that maximizes floor space by designing an architecturally renovated bioBUBBLE enclosure into the existing room. The custom, soft-walled, negative pressure environment includes 100% HEPA-filtered exhaust and integrates an anteroom into the design for donning and doffing procedures while creating a buffer zone between containment space and hallway.



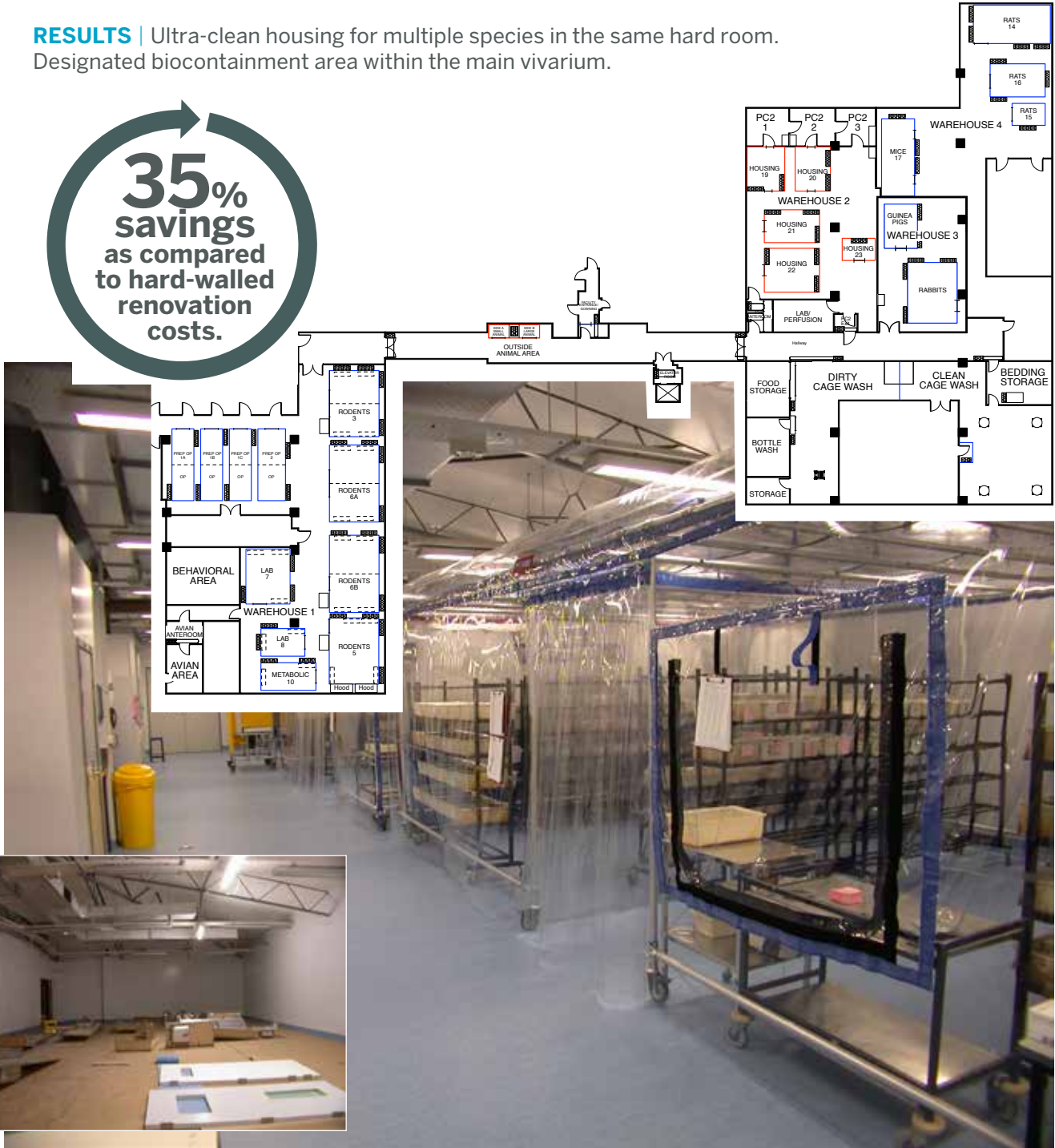
# UNIVERSITY OF AUCKLAND Medical School Vivarium

**CHALLENGE** | Create research and breeding vivarium from space deemed unsuitable. Accommodate multiple species, applications, and health statuses.

**SOLUTION** | Construct positive and negative bioBUBBLE enclosures to provide environmental separation between housing groups, procedural, and surgical spaces.

**RESULTS** | Ultra-clean housing for multiple species in the same hard room. Designated biocontainment area within the main vivarium.

**35%**  
savings  
as compared  
to hard-walled  
renovation  
costs.

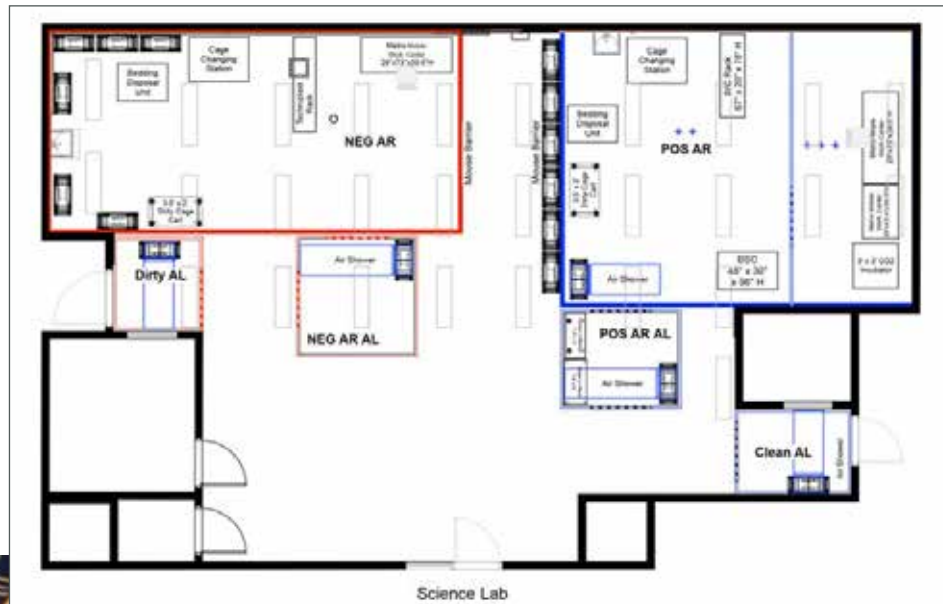


# UNIVERSITY OF CALGARY Rederivation Facility

**CHALLENGE** | Subdivide a 2,000 sq ft hard room to create suitable housing and procedural areas for an in-house rederivation operation.

**SOLUTION** | Design two large bioBUBBLE Environments, one containment, one ultra-clean, for infected vs. clean animal groups. Both enclosures feature antechambers for personnel and materials traffic to support each individual environment. Provide internal separation for embryo transplant procedures within the ultra-clean enclosure. Equip each enclosure with Changing Stations and Bedding Disposal Units for self-sustained cage changing procedures. Create air barriers between the exterior and interior of the hardroom as well as between the barrier and containment zones inside the hardroom using Anterooms with bioBUBBLE Air Showers.

**RESULTS** | The first bioBUBBLE rederivation facility design to incorporate both negative and positive pressure bioBUBBLE enclosures within the same architectural space. Eliminates outsourcing, simplifies the process and saves time and money.



# BENCHTOP BIOCONTAINMENT ENCLOSURES

The bio**BUBBLE** Benchtop Biocontainment Enclosure (BBE) provides high levels of primary containment for BSL-2 and 3 applications. BBE's are ideal primary containment solutions for cell sorters, incubators, centrifuges, microscopes, or any benchtop laboratory equipment.

The BBE captures aerosols and other airborne particulates generated during laboratory procedures and surpasses Class 1 specifications:

- Airflow 100+ fpm through the user access.
- 6-8 air changes per minute with little turbulence.
- Air is drawn into the BBE on all sides, decreasing uncirculated air pockets.



EASY TO USE

 **EXCEEDS CLASS 1 STANDARDS** while minimizing noise & vibration

# BENCHTOP BIOCONTAINMENT ENCLOSURES

## FEATURES

**Quiet:** Flexible material minimizes noise and vibration.

**Energy Efficient:** Fans are 75% efficient. Low back pressure allows fans to run at lower speeds to decrease energy use. Clear construction transmits ambient light, eliminating the need for an internal light source to maintain a low heat load and reduce electrical consumption.

**Durable:** Materials withstand the effects of harsh laboratory sterilants and disinfectants.

**Easy Access:** Innovative design facilitates access through sides of enclosure for maintenance and calibration. Custom access ports for use and service.

**Remote Display:** Monitors HEPA life, airflow and temperature.

**Small Footprint:** Custom sized to fit equipment.

**Customizable:** Options include size and style, access panel location, remote display, magnetic or hook and loop closures. Decon bags available for use with hydrogen peroxide vapor, chlorine dioxide, etc.

## TECHNICAL SPECIFICATIONS

**Power:** 48 VDC; 1.75 A

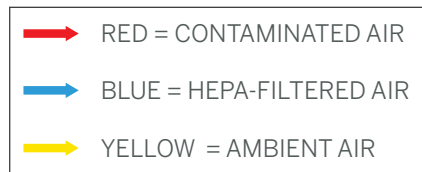
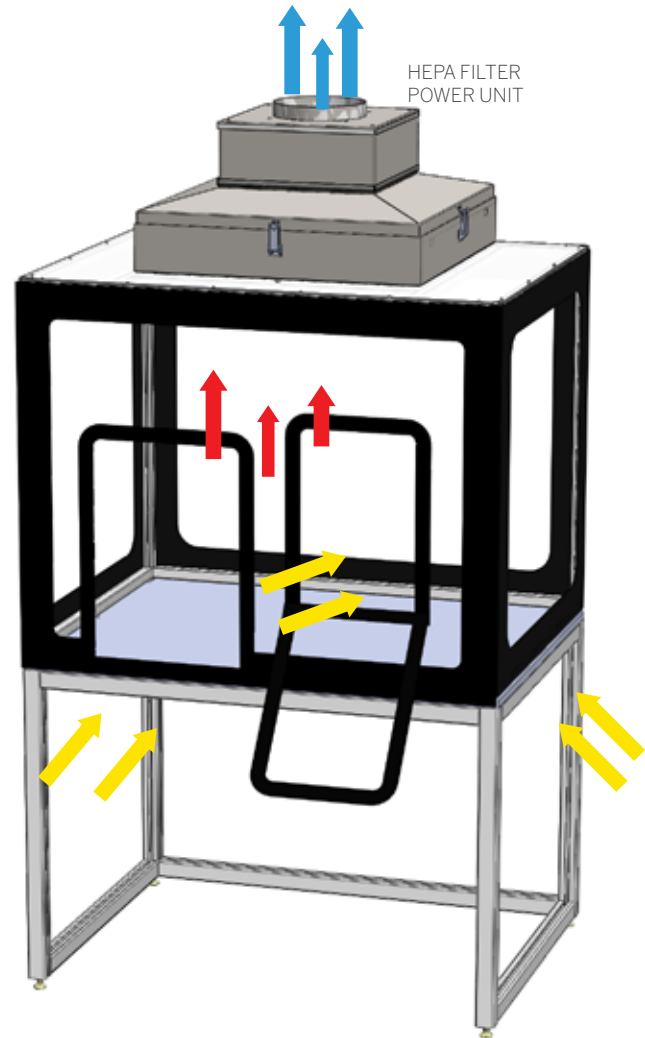
**Airflow:** 100+ fpm at user access

**Heat load:** 214 BTU/hr

**Weight:** Approx. 138 lbs

**HEPA filtration:** 99.99% or better on 0.3 micron particles, Military Std MIL-STD-282 / Industry Std IEST-RP-CC-034

**HEPA replacement:** Annual certification recommended



# ANTEROOMS/AIRLOCKS

bio**BUBBLE** Anterooms are soft-walled enclosures available as a Freestanding Units or Architectural Renovations. Anterooms operate with dedicated positive or dedicated negative airflows. Enclosures can be designed to convert between positive and negative pressures to adapt to changing environmental needs. bio**BUBBLE** constructs Anterooms in any size or configuration, customized to suit the needs of your specific application. The bio**BUBBLE** Anteroom/ Airlock is optional on all bio**BUBBLE** Clean Rooms and Containment Enclosures.

- bio**BUBBLE** constructs Anterooms using:
- a modular anodized aluminum framework
  - vinyl skin with Velcro®-type connections
  - long lasting, energy efficient blowers
  - 99.99% efficient HEPA filters

bio**BUBBLE** Anterooms are economical and durable enough to withstand the most demanding research and manufacturing environments.



▶ 80 ⇌ 100  
HEPA-FILTERED air changes per hour  
negative, positive or convertible pressure



# APPLICATIONS ANTEROOMS/AIRLOCKS

**Dedicated Doffing Space:** Negative Pressure bioBUBBLE Anterooms provide secondary containment barrier areas for personnel to perform doffing procedures prior to exiting BSL-2, BSL-3 and BSL-4 areas.

**Dedicated Donning Space:** Positive Pressure bioBUBBLE Anterooms provide a HEPA-filtered, exclusion environment that controls entry into ultra-clean and isolation environments. Positive Pressure Anterooms also maintain the integrity of sterile gowning materials and personal protective equipment (PPE).

**Docking Systems:** bioBUBBLE Anterooms provide a suitable location for the introduction of sterile materials under aseptic conditions. bioBUBBLE designs and manufactures custom docking systems to mate with autoclave containers, glove box isolator ports, pass through boxes, or any other equipment.

**Air Barrier:** bioBUBBLE Anterooms create air barriers for effective isolation of specific rooms and areas within the facility.

**Solve Air Balance Problems:** bioBUBBLE Anterooms compensate for improper air balancing due to older or problematic building ventilation systems.

**Eliminate Disease Transmission:** bioBUBBLE Anterooms reduce the possibility for airborne transmission and transference of pathogen laden airborne particulates.

**Regulatory Compliance:** bioBUBBLE Anterooms assist with personnel compliance of regulatory guidelines without the need for permanent, invasive and expensive hard construction.



< LOW PROFILE POSITIVE PRESSURE ANTEROOM USED AS AIR BARRIER IN HIGH TRAFFIC CORRIDOR

## FEATURES & BENEFITS

**Environmental Separation:** The bioBUBBLE Anteroom offers a portable, low cost, non-invasive method of achieving environmental separation within the facility, regardless of the air balance of the hard room.

**Isolation:** bioBUBBLE Anterooms effectively isolate individual hard rooms, allowing you to utilize mixed-use corridors, while eliminating concerns of cross-contamination between individual rooms.

**Assist Standard Operating Procedures:** bioBUBBLE Anterooms provide dedicated areas for implementation of standard operating procedures (eg. donning and doffing) and aid in protocol reinforcement.

**Installation and Training:** bioBUBBLE offers complete on-site installation and training performed by qualified bioBUBBLE technicians, with little to no interruption of the workflow in your facility.

**Energy Efficient:** bioBUBBLE Anterooms are extremely energy efficient. The Power Units use electronically commutated motors for energy savings.

# BEDDING DISPOSAL UNITS

bio**BUBBLE** Bedding Disposal Units are lightweight, portable units designed with the respiratory health of animal care workers in mind. Each unit draws bedding dust, dander and allergens away from personnel and into the HEPA filter. This filtration greatly reduces airborne particulates, and minimizes the opportunity for disease transmission throughout the vivarium. Use of a bio**BUBBLE** Bedding Disposal Unit creates a pleasant and allergen-free working environment.

- Easy to use, portable & affordable.
- Highly effective – Capture velocity of 100 feet per minute at outside rim of standard 30 gallon receptacle.
- Custom height modification available to accommodate any size receptacle.
- Soft, flexible surfaces minimize cage breakage – no hard surfaces come into contact with cages.
- Open design provides a more ergonomic, friendly user experience. No reaching or leaning to empty cages.



Full-Size (above) and Half-Size (left) units

**High levels of filtration in the cage wash area greatly reduces airborne particulates, & minimizes the opportunity for disease transmission throughout the vivarium.**

# BEDDING DISPOSAL UNITS

## FEATURES

**Lightweight:** Aluminum frames and lightweight synthetics are used to create the lightest units on the market.

**Portable:** Heavy-duty 5" casters with brakes.

**Capacity:** Accepts all standard biohazard boxes and waste receptacles.

**Odor control:** Decreases the volume of damp airborne particulates and significantly reduces odors.

**Options:** Custom height modification to accommodate taller receptacles. Custom modifications to accept wider receptacles.

## TECHNICAL SPECIFICATIONS

**Power requirements:**

115 Volts, 6.6 Amps [8.0A at start-up]  
Other voltages available

**Airflow:**

Full-Size: 200+ FPM at filter face  
Half-Size: 400+ FPM at filter face

**Weight:**

Full-Size: 170 lbs [77 kg]  
Half-Size: 140 lbs [64 kg]

**Dimensions:**

Full-Size: 30" x 36" x 55"H  
[76.2 x 91.4 x 139.7 cm] Standard  
Half-Size: 31" x 18" x 55"H  
[78.7 x 45.7 x 139.7 cm] Standard

**HEPA Filtration:**

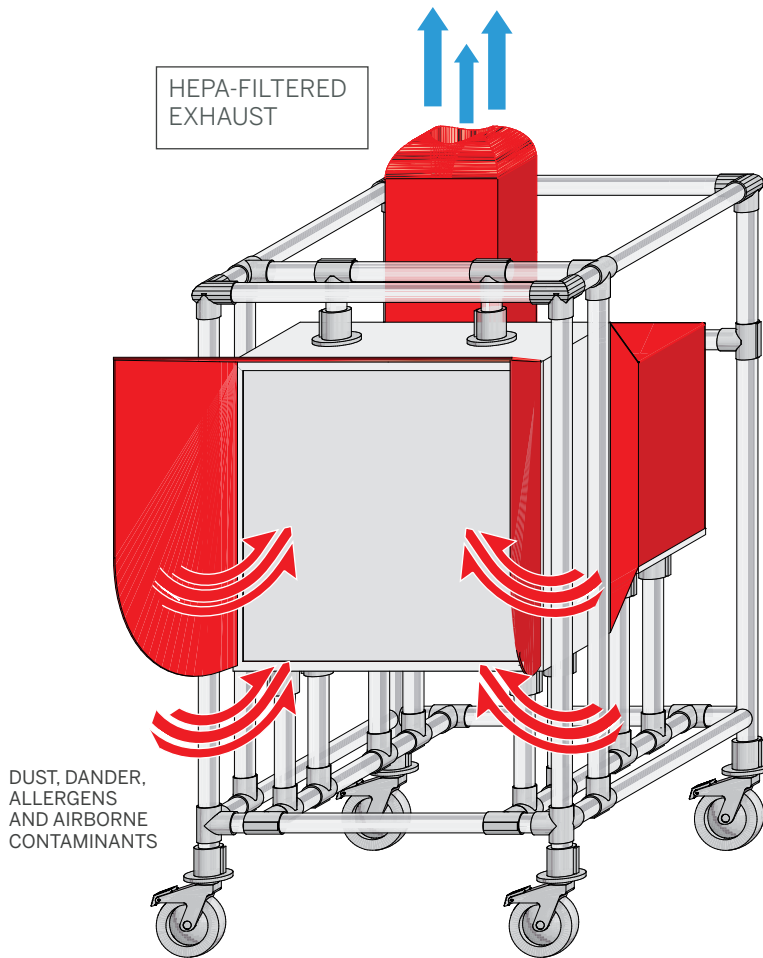
99.99% on 0.3 micron particles- military std MIL-STD-282/ industry std IEST-RP-CC001.5

**HEPA Filter:**

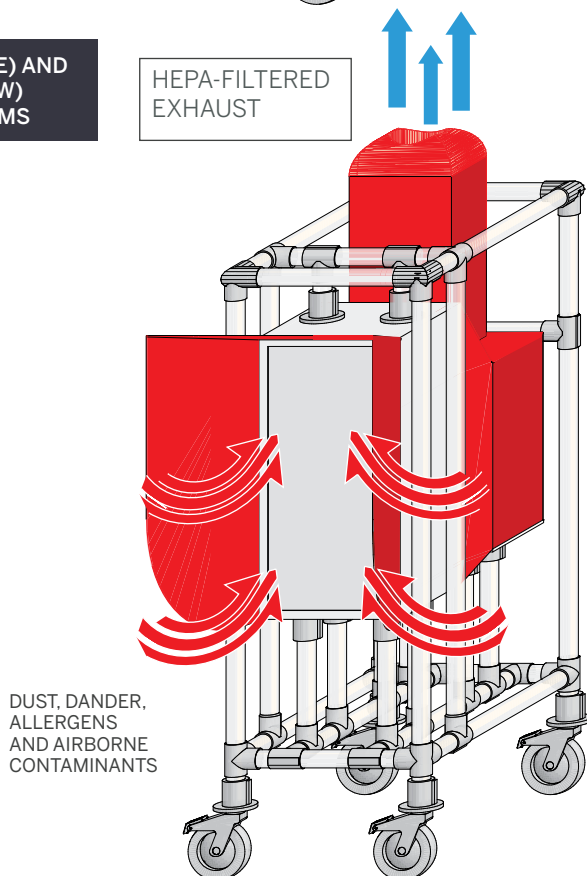
Full-Size: 24" x 24" x 12" / Half-Size: 12" x 12" x 24"  
replacement recommended every 3-5 years;  
annual certification recommended

**Prefilters:**

Full-Size: 24" x 24" / Half-Size: 12" x 24"; Change regularly or when visibly dirty



FULL-SIZE (ABOVE) AND HALF-SIZE (BELOW) AIRFLOW DIAGRAMS



# AIR SHOWERS

The bioBUBBLE Air Shower provides a high volume, HEPA-filtered air stream to create a localized area of filtration. This serves as a barrier to prevent the transmission of airborne contaminants while providing an ultra-clean environment for gowning into or out of a controlled environment. Air Showers can also compensate for improper air balance in building ventilation systems by providing high levels of filtration at doorways and entry points. Additionally, the Air Shower provides a psychological reinforcement to improve compliance with standard operating procedures.

- Custom designs fit any space and suit any application.
- Limit disease transmission in hallways and corridors.
- Reduce dust, dander and allergens.
- Compensate for improper air balance in building ventilation systems.
- Provide a localized filtered environment for sensitive procedural work.

The bioBUBBLE Air Shower provides a low velocity, high volume, HEPA-filtered air stream to create a localized area of high filtration.



# FEATURES

**Custom Size:** Soft duct of any size.

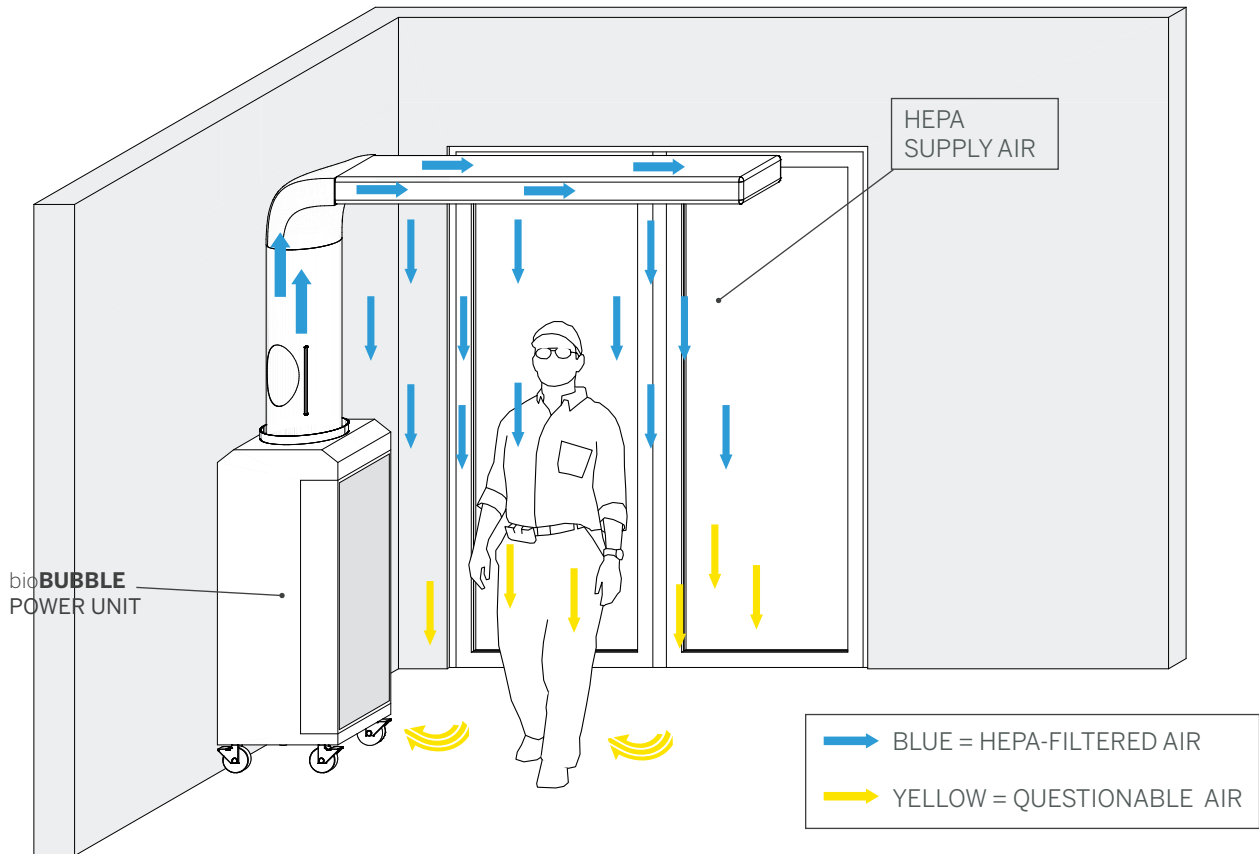
**Portable:** Heavy-duty 3" casters with brakes.

**Odor Control:** Mass air flow through HEPA filter decreases the number of damp airborne particulates and significantly reduces odors.

**Quiet:** Low noise and vibration levels.

**Energy Efficient:** bioBUBBLE Air Showers are extremely energy efficient. The Power Units use electronically commutated motors for energy savings.

**Power Unit Footprint:** 18" x 18", overall height based on duct design.



# TECHNICAL SPECIFICATIONS

**Power Requirements:** 48 VDC; 4.35 A

**Airflow:** up to 650 CFM

**Noise Level:** ± 65 dBA

**Weight:** 144 lbs [65.3 kg]

**HEPA Filtration:** 99.99% on 0.3 micron particles- military std MIL-STD-282/ industry std IEST-RP-CC-034

**HEPA Replacement:** AFH-1636; Indicator light flashes when HEPA replacement is required. Certify annually.

**Prefilters:** Change regularly or when visibly dirty

# POWER UNIT WITH DIFFUSION HEAD

bio**BUBBLE** Diffusion Heads are heavy duty portable units designed to filter ambient air and increase room air changes, drastically reducing the presence of dust, dander, allergens and other airborne particulates. This compact, energy-efficient unit is equipped with a HEPA filter certified to capture 99.99% of particulates at 0.3 microns. Corrosion resistant cabinet withstands most commercially available sterilants and disinfectants. LCD touch display controls air speed and monitors HEPA life. Two stage air filtration with replaceable primary filters extend the life of the HEPA filter.

- Lightweight portable units.
- Small footprint allows for optimal placement in any space.
- Does not disrupt room air balance.
- Custom ducts available to maximize circulation.

**More air changes  
+ 99.99%  
HEPA filtration  
= superior air quality.**



## POWER UNIT WITH DIFFUSION HEAD

### FEATURES

**Portable:** Lightweight design; Heavy-duty 3" braking casters for greater mobility.

**Odor Control:** Mass air flow through HEPA filter decreases the number of damp airborne particulates and significantly reduces odors.

**Quiet:** Low noise and vibration levels.

**Energy Efficient:** bioBUBBLE Diffusion Heads are extremely energy efficient. The Power Units use electronically commutated motors for energy savings.

### TECHNICAL SPECIFICATIONS

**Power Requirements:** 48 VDC; 4.35 A

**Airflow:** up to 650 CFM

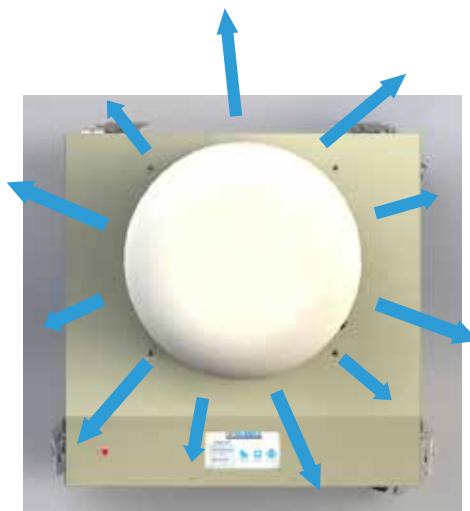
**Noise Level:**  $\pm$  65 dBA

**Weight:** 144 lbs [65.3 kg]

**HEPA Filtration:** 99.99% on 0.3 micron particles- industry std IEST-RP-CC-034

**HEPA Replacement:** AFH-1636; Indicator light flashes when HEPA replacement is required. Certify annually.

**Prefilters:** Change regularly or when visibly dirty



AIRFLOW DIAGRAM  
**TOP VIEW**  
360° DUCT STYLE



# WORKSTATION

The bioBUBBLE Workstation is a portable, clean or contained environment. Negative Pressure Workstations provide transportable biocontainment and dedicated quarantine for materials or small populations. Positive Pressure Workstations provide clean isolation for small populations or materials. Use as a transport cart or a housing environment.



## Workstations provide:

- Provide environmental separation between small groups or studies within the same space.
- Temporary or permanent housing within procedural rooms, surgical rooms and imaging areas.
- Can design to dock to directly to equipment for isolated transfer of materials and animals.

**Options for shelves, battery backup to provide power during transport, clear or opaque vinyl**



## TECHNICAL SPECIFICATIONS

**Power Requirements:** 48 VDC, 1.75 Amps

**Power:** 84 Watts

**Heat Load:** 214 BTU/hr

**Size:** 56"W x 30 ½"D x 79"H

**Weight:** 235 lb; 278 lbs with the battery option

**Airflow:** Max 150 @115 Volts

**HEPA filtration:** 99.99% or better on 0.3 micron particles-  
IEST-RP-CC-034, certify annually





# RACK COVERS

bio**BUBBLE** Rack Covers are custom manufactured to fit any size rack, trolley, cart, or other vivarium fixture. Rack Covers are constructed of incredibly durable vinyl coated polyester fabric and Velcro®-type connections creating the longest lasting covers on the market. Use Rack Covers for the transport of both clean and dirty materials to maintain the highest possible cleanliness levels in the vivarium. Standard Rack Covers are available in eight different colors to facilitate the segregation and easy identification of components within the facility. Rack Covers easily slip onto your existing racks and can be secured around the lowest shelf (optional). Rack Covers are washable on an alkaline cycle at temperatures up to 180° F.

## FEATURES & BENEFITS

- Custom manufactured to fit your racks, carts or trolleys.
- Heavy-duty fabrics create the most durable covers on the market.
- Washable in the cage / rack washer up to 180° F
- Rack Covers can be docked directly to bio**BUBBLE** Clean Rooms, isolators, and autoclave containers for completely isolated transfer of clean materials and animals. (optional)



bio**BUBBLE** has over  
30 years experience  
in creating custom ultra-  
clean & containment  
environments. We have  
projects worldwide.  
**Big & small.**

We have the solution to transform your  
space efficiently & creatively.

**Please contact us for more information >>**

T 970 224 4262 | [sales@biobubble.com](mailto:sales@biobubble.com)

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

CONTAINMENT ENCLOSURES

CLEANROOMS

CUSTOM DESIGNED SOFT WALL EQUIPMENT

ISOLATION ENVIRONMENTS

HEPA FILTERED WORK STATIONS

QUARANTINE ENVIRONMENTS

BIOSAFETY LEVELS 2, 3, & 4

AIRLOCKS AIR SHOWERS

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