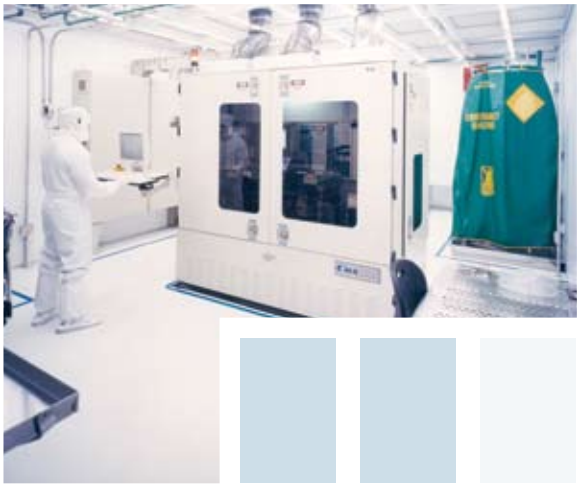
Modular Architectural Cleanroom Systems



PORTAFAB
Technology Division

For over 30 years.

PortaFab has been the leading manufacturer of modular cleanroom wall systems. Our CleanLine, FabLine, and PharmaSystem wall systems interface with floors, ceilings, and mechanical components to provide an ultra-clean environment with effective control of air flow, pressure, temperature, humidity and filtration. They can be customized to fit your exact requirements and provide a cost-effective alternative to conventional construction without compromising quality, durability or efficiency.

Why Modular

While flexibility remains a key advantage for the use of modular architectural systems, there are many reasons to consider modular over conventional construction.

Flexibility & Adaptability

Today's manufacturing facilities are being designed and constructed for maximum adaptability. As such, facilities must be constructed of components that not only allow change but provide the utmost flexibility as needs change in the market.

Modular design accommodates this need for flexibility. Non-progressive construction with demountable walls allows the removal of individual wall panels without disturbing adjacent panels, flooring or ceiling. Modular systems can also be disassembled and relocated to quickly create or expand cleanrooms, lowering the costs of expanding existing facilities.

The systems can be moved, reconfigured and expanded cleanly and easily. All of the components can be reused in new configurations, and raceways built into the system allow easy access to utilities. These systems can also easily accommodate rack-mount utilities on chase walls and bulkhead openings.

Static dissipative epoxy finishes comply with requirements for nano technology applications.

Free-standing envelope structure is independent of existing building.

Reduced Construction Time

Speed to market is critical for manufacturing companies. Modular cleanrooms utilize a flexible design that allows for fast, easy installation in a system that can be expanded or relocated as needs change.

New construction and retrofits must be carried out as quickly as possible. One way to reduce construction time is to perform as many construction activities in parallel as possible.

For many projects, modular construction can reduce construction time by up to 40 percent through parallel construction while also greatly reducing facility clean-up post-construction. In addition, using modular components significantly reduces design, architecture and engineering time and associated costs.

Minimized Disruption

Construction activities invariably result in any jobsite disruption. Dust generation, increased personnel, and noise and vibration can all negatively impact any job site. Since modular walls are made of non-shedding and non-particulating materials and require little or no modification for installation, construction creates very little dust. This prefabricated “clean build" approach also allows for the coordination of project schedules so that construction materials can be shipped in stages to coordinate with other trades.

Financial Savings

Modular construction has proven to have a lower lifetime cost over conventional construction for many reasons. First, conventional construction is permanent. Making modifications to any room is expensive, messy and disruptive to the current operation. Existing walls cannot be reused and require new materials and labor, increasing renovation costs. There are also no tax advantages associated with this type of construction.

In addition, modular construction costs can typically be offset by the savings achieved through greater productivity, decreased design costs, and increased construction predictability. Modular construction results in less construction material waste due to greater reliance on prefabricated components that eliminate on-site modifications.

Consistent Quality & Regulatory Compliance

Modular walls are manufactured to provide a consistent quality as opposed to those made using conventional construction that can vary from one section of a cleanroom to another depending on the skill level of the trades.

These modular systems offer advantages for meeting regulatory requirements and standards because they are manufactured with factory-controlled procedures that produce a consistent, quality product with no variation. This ensures what has been successfully employed at one facility, will perform the same in future installations, and the system will be installed in a set manner, producing a consistent performance and appearance.

Duct work can be supported off walls for return air chases.

Special glazing has been flush glazed into walls to minimize ledges.

Tax Advantages

Since modular construction can be considered equipment in most states, PortaFab systems are typically subject to accelerated depreciation and tax considerations. Check with your financial advisors.

cleanLINE™

All purpose cleanroom wall systems designed for applications from Class 10 to 100,000 environments. CleanLine modular wall systems are excellent for medical device and industrial applications.

fabLINE™

Designed primarily for the microelectronics and nanotech industries, FabLine systems are ideal for applications that require non-outgassing, non-shedding, and anti-static wall systems.

pharmaSYSTEM™

Designed for life science and pharmaceutical applications that require a flush wall surface with radius corners for ease of cleaning, nonporous surfaces, and resistance to microbial and fungal growth as well as architectural finishes that withstand repeated cleaning and sanitization with various chemical solutions.

cleanLINE™

Designed for applications from Class 10 to 10,000 environments, the S3000, P2000, and PM458 are designed to meet all the requirements of a new or existing project while providing an effective alternative to conventional construction.

The CleanLine Series provides complete flexibility with demountable walls allowing panels to be modified or removed without disturbing adjacent wall panels or the ceiling. The CleanLine System can be installed as a free-standing envelope structure independent of the rest of the building.

The non-progressive design allows one to change individual panels easily or relocate the entire structure. Wall panels can be removed to permit equipment entry into the facility and then replaced quickly and easily.

The CleanLine System can be installed as a free-standing envelope structure independent of the rest of the building. Our load bearing equipment platforms provide support to mechanical equipment or maintenance loads. The system can also be installed as a floor to ceiling system and connect to the underside of a ceiling grid system or the deck of a building.

The extruded aluminum components and ultra smooth panel surfaces are ideal for acheiving maximum cleanliness in a controlled environment. With all the options available, PortaFab can tailor a cleanroom to fit your environmental control and plant configuration needs faster and at a less cost than conventional construction.

Load-bearing roof plenums provide a maintenance platform eliminating the need for a separate catwalk.

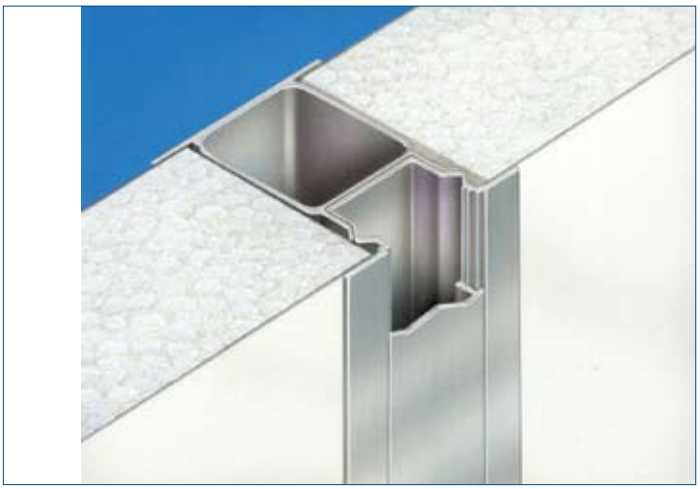
Applications

The CleanLine System is versatile enough to be used in industrial medical device and pharmaceutical applications. The innovative design allows for either recirculating or single pass systems, or can be integrated into a custom design.

The unique stud post design permits the installation of electrical service vertically.

Customized designs, to meet your exact room needs, allow you to interface easily with mechanical equipment and accommodate conveyor openings, pass thru and grille openings.

S 3000 walls are ideal for creating stand alone units like the Class 1000 Cleanroom for medical supplies.



S3000 Wall System

The S3000 3" thick cleanroom wall system is the perfect solution when a free-standing cleanroom envelope with a plenum cap is required and the design criteria do not allow the cleanroom to tie into an existing structure where the ceiling can be supported. The systems load-bearing roof provides support of mechanical equipment while its height capabilities make it the ideal choice for applications where extended ceiling heights are demanded due to tall equipment.

- 3" (76mm) wall panel provides flush wall surface on both sides
- Load-bearing
- Available in heights up to 18' tall

PM458 Wall System

The PM458 system features extra height walls that can extend to your existing ceiling or be freestanding with load-bearing decks.

The simple, fast installation of the PM458 minimizes plant disruption while the variety of core materials and panel finishes allow you to meet requirements for acoustic and thermal insulation, chemical resistance, and static control.

- 4-5/8" wall panel provides flush wall surface on both sides
- Load-bearing roof capabilities
- Available in heights up to 24' tall

CleanLine Wall Panels

Panels are available with various surface finishes including: vinyl, high pressure laminates (HPL), fiberglass reinforced plastic (FRP), poly-vinyl chloride (PVC), aluminum, painted steel, painted aluminum (conductive or non-conductive), or porcelainized steel. Aluminum and steel can be finished with a variety of paints including baked conductive and non-conductive epoxy, polyester, and acrylic.

Panel cores include aluminum honeycomb, paper honeycomb, expanded polystyrene, isocyanurate, gypsum or others based on project requirements.

fabLINE™

FabLine Modular Cleanroom Wall Systems make it easier and more cost effective than ever before to create ultra-clean facilities meeting the critical environmental conditions demanded in precision microelectronics manufacturing and nanotech research.

Functionally designed components give you complete flexibility to adapt to constantly changing requirements from expanding a facility to retooling an entire operation. The unique design and assembly improvements ensure your ability to control the critical elements of a cleanroom environment. Systems are engineered for use in any class cleanroom to meet your most demanding specifications.

FabLine incorporates all aluminum composite wall panels that are non-outgassing, non-particle shedding and anti-static - all factors that decrease product contamination concerns. The non-progressive design allows for easy removal of the walls for equipment bulkheading without the need to remove adjacent panels, framing studs, or ceiling grids.

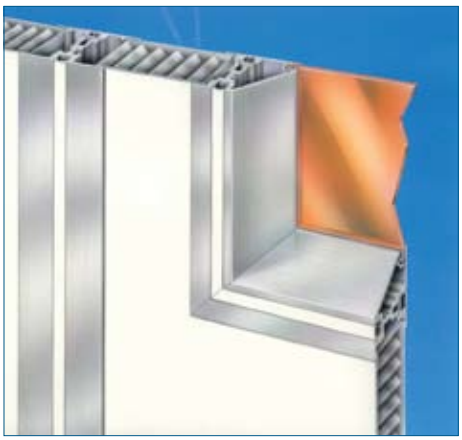
The FabLine Series includes three wall systems for Framed, Batten, and Furring applications.

A durable cleanroom wall system with broad design flexibility, FabLine wall systems provide the optimum combination of high durability, design versatility, and simple installation.

Wall mounted fixtures and pass thru openings are integrated easily into this gown room.

Static dissipative epoxy finishes meet industry standards for microelectronics and nano applications.

Elevated wall panels for low wall returns in circuit board manufacturing facility.



Framed Wall Systems

Ideal for environments up to a sub-Class 1 (M1) classification, FabLine Framed wall systems are available in three panel thicknesses and are the ideal wall system for constructing cleanrooms requiring a flush surface on one or both sides of the wall. It is designed for extensive bulkheading around tools and equipment. Vertical and horizontal members are easily connected to each other to simplify bulkheading that allows gasketed, air tight seals around equipment and tooling for minimum loss of room pressurization.

Framed 2000

This 2.00" (50mm) thick wall system for cleanrooms provides a flush surface on both sides of the wall panel and is available in heights up to 12' tall.

Framed 500

These 0.50" (12mm) thick wall panels provide a flush wall surface on one side ideal for mechanical and plenum chase applications and are available in heights up to 12' tall.

Framed 250

Utilizes a 0.25" (6mm) thick wall panel. The cost-effective solution for bay/chase cleanroom designs requiring small and large gasketed bulkheads. Available in heights up to 12' tall.

Batten Wall Systems

When extensive bulkheading is not required, the FabLine Batten wall system provides an effective, economical partition system. Fewer components and simpler design allows the wall system to be installed even more quickly than framed wall systems or conventional construction while still maintaining a flush surface on both sides of the wall. The nonprogressive design allows the individual wall panels to be moved without disturbing adjacent walls or ceiling.

Batten 2000

This 2.00" (50mm) thick wall system for cleanrooms provides a flush surface on both sides of the wall panel and is available in heights up to 12' tall.

Satelite manufacturing facility with high bay ceiling

Furring Wall Systems

This economical system provides the ability to create a cleanroom out of an existing room or upgrade a cleanroom already in use. FabLine Furring wall systems offer an attractive, cost-efficient wall system for clean room construction over existing block or gypsum walls, studs, and columns. The functional design also allows it to be installed on strut-type framing to create a mechanical/ plenum chase.

Wall panels provide a flush surface on one side while creating a consistent appearance with the ballroom or plenum walls. Universal design allows easy connection to strut or stud framework. Complete flexibility allows for the wall system to be designed for any configuration.

Furring 250

This 0.25" (6 mm) thick wall system offers an attractive, cost-efficient alternative for installation over unlimited wall surfances.

Furring 500

This 0.50" (12 mm) thick wall system is ideal for installing over existing block or gypsum walls, channels, or columns as it provides greater wall rigidity than other liner wall systems.

Panels can be furred to existing walls as cladding or onto metal studs to create a return air chase.

pharmaSYSTEM™

PharmaSystem modular wall and ceiling systems are the ideal solution for creating controlled environments in pharmaceutical and biotechnology facilities.

With FDA requirements becoming more stringent and market demands continuing to rise, manufacturers must find ways to increase product yield and reduce overall construction schedules.

A Total Cleanroom System

PharmaSystem is designed to meet the most stringent guidelines for pharmaceutical and cleanroom construction requiring a high level of aseptic detailing. It is a completely flush panel system with products for partition walls, liner applications, and ceilings.

The pre-engineered wall panels provide a consistent appearance with the flexibility to be modified on an ever-changing job site. They can be configured to any layout and are easy to install.

The PharmaSystem furring wall option is cost effective and consists of a universal design allowing ease of connecting to block, concrete, drywall and metal stud framework. These walls are ideal for wash down environments or sanitizing with aggressive cleaning agents.

Our double wall design option allows for piping, electrical, and mechanical processes to be integrated within a cavity wall system. With this wall option, it would not be necessary to create a "double" wall with two free-standing partition walls.

All PharmaSystem components install to form airtight rooms, designed to withstand both negative and positive pressures.

The need to support mechanical equipment, piping and ceiling systems is critical in cleanrooms, so when an existing facility is unable to offer the criteria, our structures provide the "envelope" without tying into the existing building. These free-standing structures can be designed to any configuration and size requirements, and also include high Sound Transmission Class (STC) rating which provides excellent thermal insulation and sound deadening properties.

Turnkey Solutions

PortaFab's commitment to maintaining the highest quality standards extends to the international network of specialized contractors for our cleanroom wall systems.

These contractors must meet the most exacting industry standards of customer service, industry knowledge and expert installation procedures. Their experience in constructing cGMP facilities has made them the preferred source for many leading companies.

Our network of contractors maintain the highest quality control programs to assure compliance with all critical standards. As independent contractors, they choose to work with PortaFab because our PharmaSystem offers the highest quality product available.

With over two decades of cleanroom fabrication experience, PortaFab has earned the reputation as the leader in the design and production of cleanroom systems.

Raised air walls eliminate the need for a grill and provide a more cleanable detail, reducing crevices in the room.

Sliding doors are easily interfaced with wall systems to provide a consistent appearance while meeting GMP guidelines

The double wall design of PharmaWall allows equipment, ductwork and mechanical to be installed within the wall cavity

Elevation

A fully integrated aseptic envelope system provides smooth, cleanable surfaces to meet and maintain requirements of FDA validation and cGMP applications.

Wall Panels

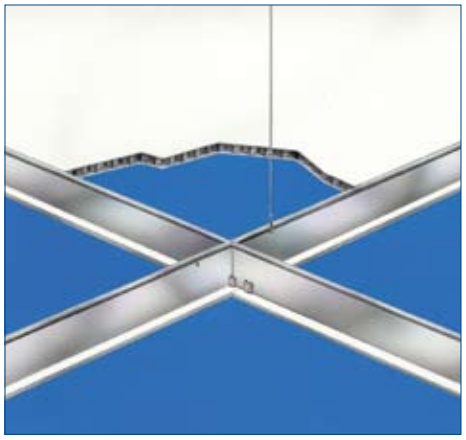
Various panel finishes are available including painted, stainless, and pvc coated surfaces. Panel joints can be either chemically welded or caulked to form tight straight-line bonds. Panel core options include aluminum honeycomb, high impact board and gypsum.

Window

Various glazing options provide panel width windows to achieve a flush, ledge-free finish. Double flush glazing is easily incorporated into all wall thicknesses.

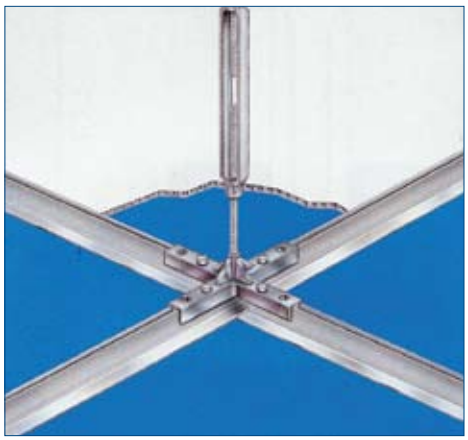
Headtrack

Two-piece snap in system provides a smooth rounded and easy-to-clean cove for ceiling-to-wall and wall-to-wall transitions. Three way welded corner assemblies are available for inside ceiling corner and wall intersections.



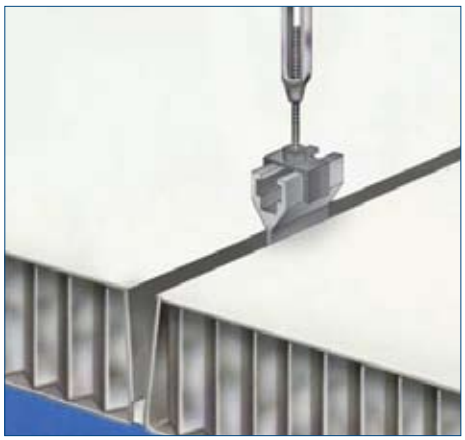
1-1/2" Gasket Grid

The 1-½" Gasket Grid Ceiling System is the perfect solution for diverse applications including semiconductor, microelectronics, aerospace, food service, food processing, pharmaceutical, and hospital industries. The gasketed grid is designed with a 1-½" face tee to support HEPA filter systems and light fixtures. Installation is simplified with a clip assembly requiring no special tools for the attachment of grid components. Choose from a wide selection of module sizes such as 2'x 2', 2'x 4', or 4'x 4'. Ceiling grid systems are available in powder coat white and clear anodized finish.



2" Gasket Grid

The 2" Gasket-Seal Ceiling Grid System combines flexibility with simplicity to meet the ever-changing needs of the technology industries. The system offers the complete versatility of nonprogressive construction required in most cleanrooms. It is a functional stick-built system that provides a 2" wide structural grid system with aluminum extrusions and zinc die castings to receive standard filter modules, light fixtures and blank ceiling tiles. Truly an engineered system for ease of installation, the system can be used in 2 x 2, 2 x 4, 4 x 4 and custom layouts.



PharmaCeiling Panelized System

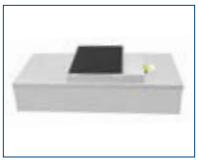
The PharmaCeiling is designed as a flush ceiling system which provides end users and owners with the ability to utilize the area above the cleanroom for mechanical services or walk-on capabilities for maintenance access when applicable. The PharmaCeiling System is a 2" thick composite panel using a steel skin on both sides of an aluminum honeycomb core. Available with a variety of coatings and finishes (including PVC coated), the steel facings are designed to form tight, straight-line joints between adjoining panels and beams. All panels are Class A, non-combustible.

The use of walkable ceilings for access can minimize the need for catwalks above the cleanroom areas, reducing steel costs and installation time. The use of catwalks can then be limited to areas where equipment access is needed for maintenance or replacement of larger pieces of equipment (AHU motors, cooling coils, heat exchangers, etc.).

Ceiling Blanks

Ceiling Blanks are available in walkable and non-walkable designs and can be installed within any grid system with modules sized 2' x 2', 2' x 4', and 4' x 4'.

PharmaCeiling minimizes the need for catwalks while providing a flush ceiling system



Fan Filter Units

Various fan filter units can be incorporated into PortaFab cleanrooms depending on your exact specifications.

Steel Doors

Glazed or flush steel doors integrate into the aluminum door frames utilizing butt hinges at the jamb connection.

Electric Sliding Doors

Sliding doors easily integrate into our wall systems and are available in any size with a variety of hardware available including push button entries, motion sensors, and non-outgassing seals.

High Speed Roll Up Doors

Roll Up Doors offer advantages over swinging doors, sliding doors, and strip curtains. Doors can be created up to 18' x 18'. Suitable for Class 10,000 to Class 100,000 applications, the door opens and closes quickly reducing the time the cleanroom interior is exposed.

Cleanroom Doors

Full glass of half glass architectural aluminum doors are available with a variety of hardware options, including pivot hinges, surface mounted closers, concealed closers, panic hardware, and locksets. All horizontal glazing clips are beveled to eliminate any difficulty in wiping down corners to reduce particle accumulations.

Pass Thrus/Framed Openings

Pass thru air locks minimize entry of contaminants into the clean room by providing a means for pick-up and delivery of products and supplies without personnel entry. Productivity is increased because clean room personnel remain clean and on-the-job; delivery personnel and contaminants remain outside.

Grill Openings

Grill openings and cutouts for pass thrus, windows, or equipment can be factory installed to reduce field labor costs and assembly time.

Mezzanine Plenum Structures

The need to support mechanical equipment, piping, and ceiling systems is critical in cleanrooms, so when an existing facility is unable to offer this criteria, our mezzanine plenum structures provide the “envelope" structure without tying into the existing building. These free-standing structures can be designed to any configuration and size requirements and support tools.

Wiring Studs

The need for communication, utility, and electrical lines are of the utmost importance in any facility. The wiring stud post provides capabilities for running vertical and horizontal wiring/communication lines without having to cut out openings in the wall panels or affecting the structural integrity of the wall.

Glazing Options

Windows and doors can be glazed with a variety of options as specified by the project requirements. One can choose from tempered glass, tinted glass, lexan, acrylic, static dissipative, film-covered glass or solid panels.

Air Showers

Air showers remove surface lint and dust from garments of workers entering the clean room without time consuming and counterproductive decontamination delays.

Paint Finishes

A variety of painted finishes are available with aluminum or steel surfaces including conductive epoxy, non-conductive epoxy, acrylics, polyester, or powder coating.

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