



QUALITY IS OUR MOTTO

PHARMA AIR MODULAR SYSTEMS

Design-Engineering-Manufacturing-Construction

MODULAR CLEAN ROOMS



APPLICATION AREAS :

- ◆ Pharmaceuticals
- ◆ Biotechnology
- ◆ Medical Devices
- ◆ Food & Beverages
- ◆ Healthcare / Pathology / Microbiology
- ◆ Aerospace
- ◆ Microelectronics
- ◆ Nano Technology



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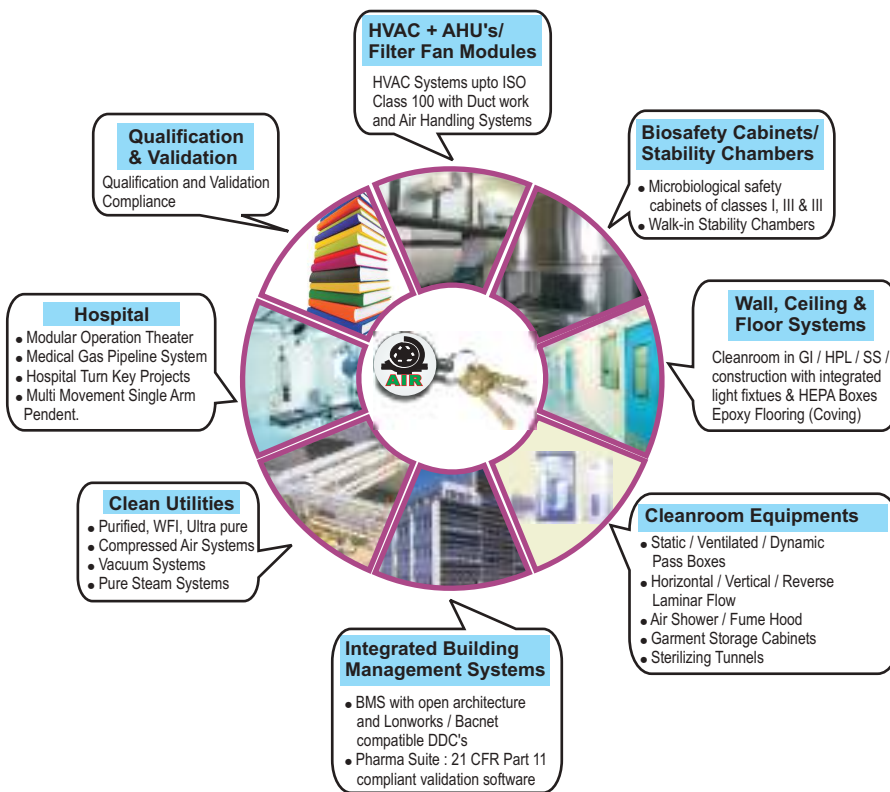


Pharma Air Modular System's is an fastest Growing with quality grading company and is one of the largest manufacturer of Clean room Partitioning, HVAC Systems Equipment and Turnkey Solution Providers around the world.

Established in the year 2009, under the Indian companies Act. Pharma Air Modular Systems has a manufacturing area 50,000 sq.ft. with an over all supportive infrastructure area of 1,00,000 sq ft. The plant is fully equipped the latest NC/CNC manufacturing equipment based on CAD/CAM Softwares.

Pharma Air has its corporate office located at Mumbai (Kalyan) & Branch Office in chennai and state of the art manufacturing facility at Atgaon (Mumbai-Nashik Highway) Shahapur, Dist-Thane Maharashtra India. A Team of professionals support Indian & International Projects of our esteemed clients in the field of Application Areas, Pharmaceuticals, Biotechnology. Medical, Devices, Food & Beverages, Healthvcare / Pathology / Microbiology / Aerospace, Microelectronics & Nano technology.

Pharma Air Modular Systems has R & D Latest Design & Technology, High Quality Range and Qualitative Human Resources. As a result Pharma Air Modular Systems represent with an ideal line of products and services that would save your money and time.



Specialised Solutions for



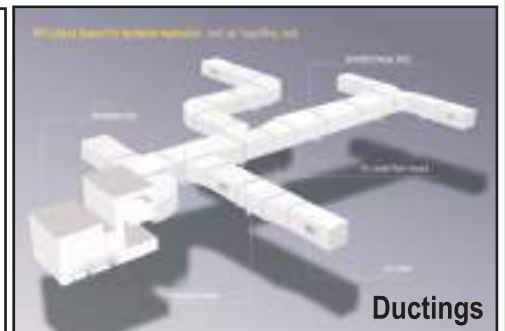
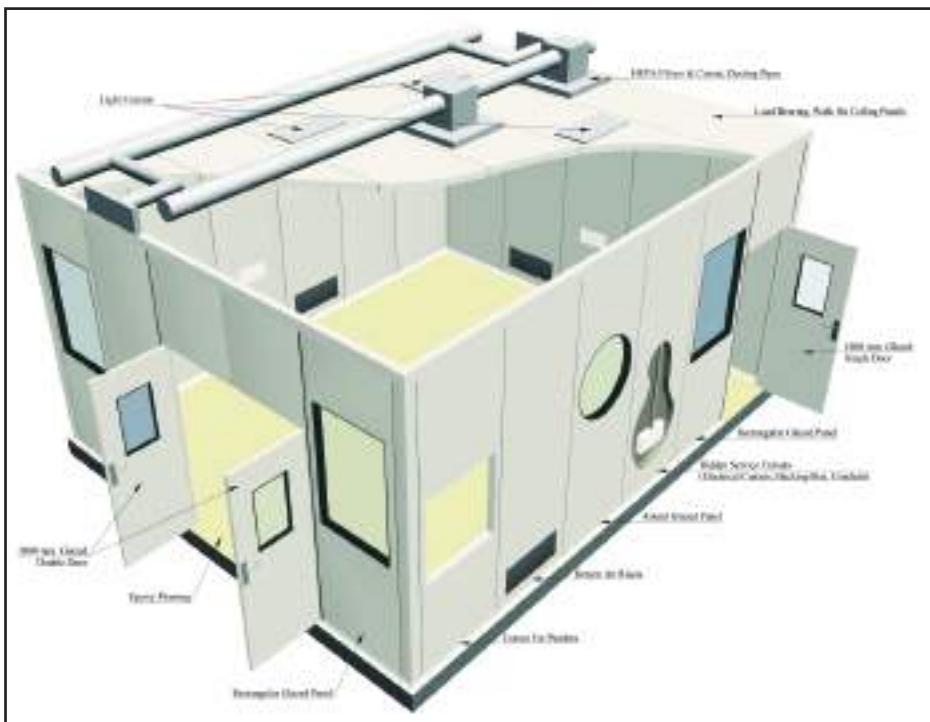
Advantage - Pharma Air Modular Systems

Why Pharma Air Modular Systems

- Provides a unique suite of benefits and clearly superior performance
- Provides an unparalleled range of sizes and fittings coupled with innovation and high levels of engineering support through design, selection, installation and commissioning.
- This level of support and dedication ensures secure project delivery and peace of mind.
- Successful projects delivered across the world are testimony to PAMS's attention to all phases of the project life.

- STERILE	- INJECTABLE
- ONCO	- R & D LABS
- HOSPITAL	- API
- LVP / SVP	- BIOPHARMACEUTICALS

MODULAR CLEAN ROOMS



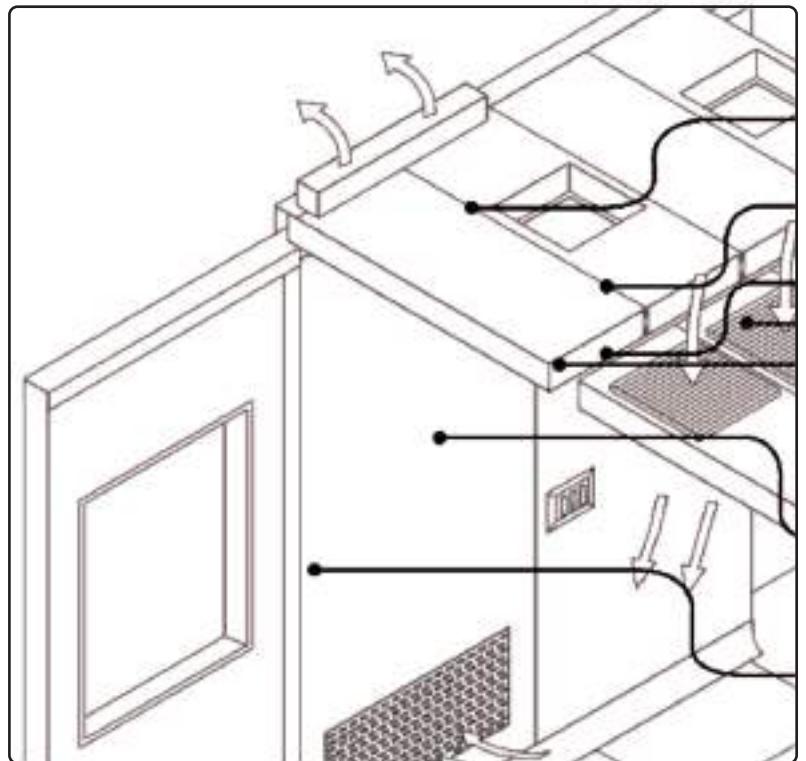


Pharma Air Modular Clean Room Partitioning Systems

Pharma Air Clean Room Partitioning System is designed for ease in installation and a practical functionality, while maintaining a modular flexibility to interchange through ease of demountability. Whether you are adding-on, modifying an existing facility, or constructing a new facility, the Pharma Air panel system offers materials to suit your specific application.

The Pharma Air system can be integrated with a wide range of new or existing systems to coordinate any clean room facility or manufacturing environment. Simplified construction methods and our Progressive/ Non-Progressive systems will help our clients minimize overall construction time.

- **GI Powder Coated Clean Rooms (GI)**
 NANOCORE-50 / NANOCORE-80 / NANOCORE-100
 ULTRACORE-50 / ULTRACORE-80 (Round Corner)
- **High Pressure Laminate Clean Rooms (HPL)**
 DECOCORE-45 / DECOCORE-80 (Round Corner)
- **Glass Reinforced Polymer Clean Rooms (GRP)**
 FIBERCORE-150
- **PPGI**
 PRE-PAINTED GI CLEAN ROOM

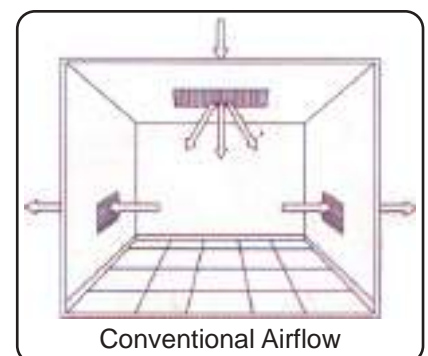
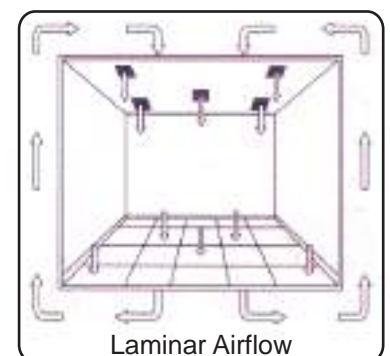


Purity Classes for Sterile Zones

Clean Rooms are designed to provide this by meeting purity classes based on ISO and DIN standards, as appropriate to a given application.

Air particle count		Maximum allowable particle count per m3					
DIN EN ISO 14644-1 ^{a)}	US Federal Standard 209 Si ^{a)}	$\geq 0.1\mu\text{m}$	$\geq 0.2\mu\text{m}$	$\geq 0.3\mu\text{m}$	$\geq 0.5\mu\text{m}$	$\geq 1.0\mu\text{m}$	$\geq 5.0\mu\text{m}$
ISO Class 1		10	2				
ISO Class 2		100	24	10	4		
ISO Class 3	M1.5 (1) ^{b)}	1000 1240	237 265	102 106	35 35	8	
ISO Class 4	M2.5 (10) ^{b)}	10000 12400	2370 2650	1020 1060	352 353	83	
ISO Class 5	M3.5 (100) ^{b)}	100000	23700 26500	10200 10600	3520 3530 3500	832	29 0
ISO Class 6	M4.5 (1000) ^{b)}	1000000	237000	102000	35200 35300	8320	293 247
ISO Class 7	M5.5 (10000) ^{b)}				352000 353000 350000	83200	2930 2470 2000
ISO Class 8	M6.5 (100000) ^{b)}				3520000 3530000 3500000	832000	29300 24700 20000
ISO Class 9					35200000	8320000	293000

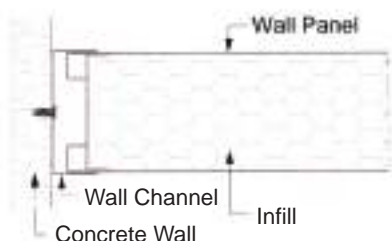
a) Varies by operational status (idle depicted)
 b) Class division in cubic feet



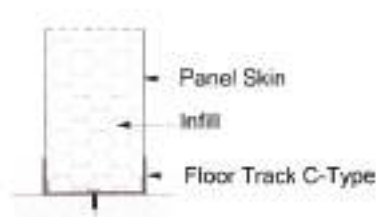


Modular Clean Room Systems

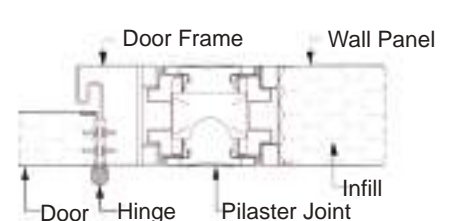
- Panel Width** : 1200mm, 1000mm and 900 mm as standard. Panel thickness 50/80/100 mm ability to carry and conceal services, return air ducts/rises.
- Panel Height** : Up to 6000 mm with provision to have stacked panels for higher level applications.
- Base Detail** : Recessed Type Base to allow a flush coved finish/C-Type Base
- Insulation** : Mineral Wool, Polyurethane foam, Honeycomb paper/aluminium core assure absolute panels rigidity.
- Panel Weight** : Dependant upon specification and thickness of Panels.
- Surface Finish** : Electrostatically applied Epoxy polyester powder coated as per RAL color's, SS finish and Stylum Shade.
- Panel Connection** : Each panel is connected to its adjacent unit or door unit or door unit with a friction type interlocking key. This allow speedy erection and dismantling.
- Glazing** : Double flush glazing with 6 mm toughened glass on both sides within a stainless steel-Powder coated framings.
- Door** : Steel lock formed construction-optional double and single glazed apertures
- Acoustic** : Solid panel - Rw 41 dB - (BS 5821)
- Coving** : Optional radius floor-ceiling coving accessories
- Air Leakage** : Silicon Sealant for sealed applications



Wall to Panel Joint



Panel to Floor Joint



Door to Panel Joint



Panels for Clean Room partitions

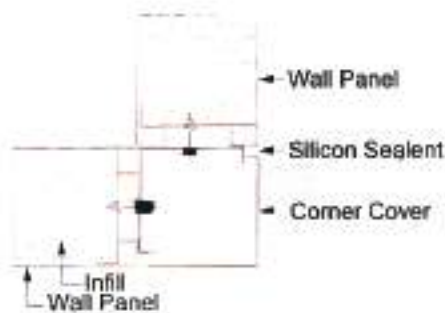
Pharma Air mono block/modular partitioning walls are fabricated by way of nominal 2 x 0.8/1 mm galvanized/SS steel sheets, lock formed quality (LFQ), minimal spangle with a Zinc coating of 80-120 gsm. They are Bonded with an Polyurethane foam, Honeycomb Paper Core of High Density Mineral Wool, forming a rigid panel to modular widths of 100 mm to 1200 mm and up to 3000 mm in height.

Pharma Air modular walls have been installed in clean rooms throughout the world in a range of Application Area : Pharmaceuticals, Biotechnology, Medical Devices, Food & Beverages, Healthcare / Pathology / Microbiology, Aerospace, Microelectronics, Nano Technology etc.

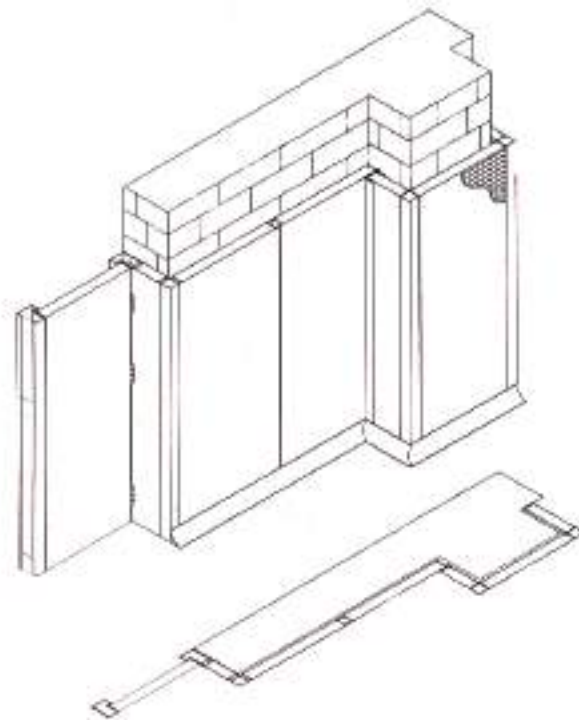
The system is readily adaptable to meet the requirements of most clean room classifications as determined by Pharma Air grades used in pharmaceutical applications. Make up panels are produced within the sizing layout of the drawing. Panels are pure/epoxy polyester powder coated to 60-75 microns forming a smooth surface finish with 20/30% Gloss level.

A complete range of Partition walls and Ceiling systems are available to meet the technical specification of controlled environment rooms. Both ceiling-partitions are inert, non particle shedding, forming part of a clean room aseptic envelope to enable compliance with FDA validation procedures and Pharma Air standards.

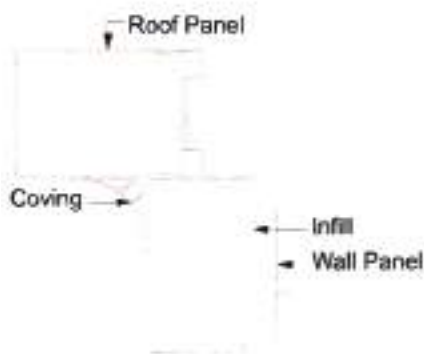
Full details of the complementary range of ceiling systems are available on request.



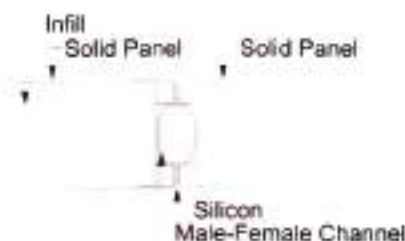
Corner Detail



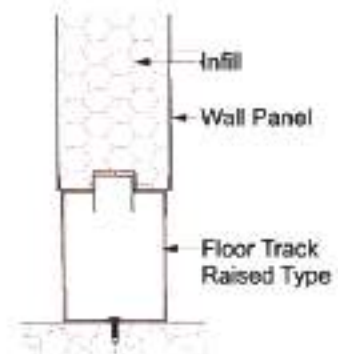
Corner, Wall & Column Cladding Detail



Roof to Panel Detail



Panel To Panel Detail



Panel Base Detail



HPL Modular Clean Room

Pharma Air has developed the HPL clean room walls/Systems for use in high purity classes of clean room requirements based on ISO and Pharma Air standards.

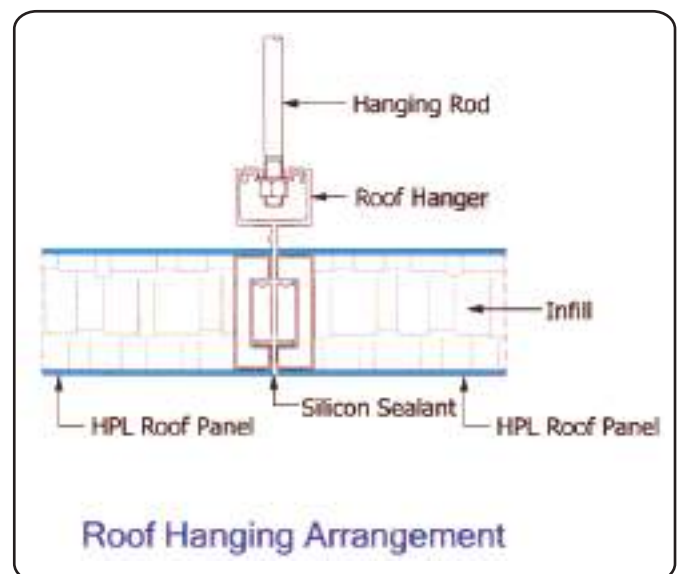
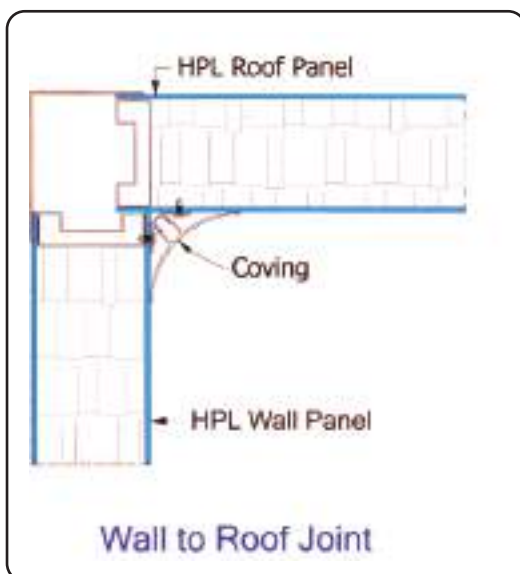
Advantages :

- Resistance to all major cleaning agents
- Available in different colors
- High resistance to scratches
- Ease to work for flush installation of accessories and for modification during erection
- No need of supporting skin structure, in case of scratch or wall chipping, no low class materia exposed to the environment

Consistency with the use of HPL 4.0 mm for integration with door and coving profiles used in other areas.
Good mechanical stability.

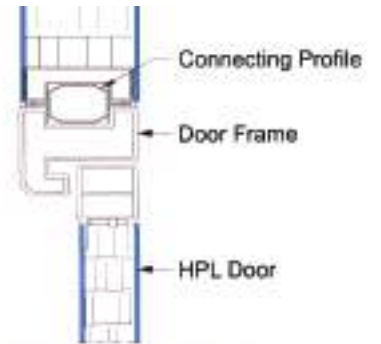
HPL Partitioning System

- Panel : 1200 mm standards.
Panel thickness 45 & 55 mm. Ability to carry concealed services and Return air ducts/risers
- Height : Up to 3000
- Insulation : Air packed in the panels works as pure insulation.
- Surface finish : Glossy finish available in various colors.
- Panel connection : Each panel us connected to its adjacent unit with male female sections.
- Glazing : Double flush glazing with 6mm thick toughened glass on both sides.
- Doors : 45 mm thick. Double glazed door having leaf width of 750, 900 & 1000 mm.
- Air leakage : Silicone for sealed applications.

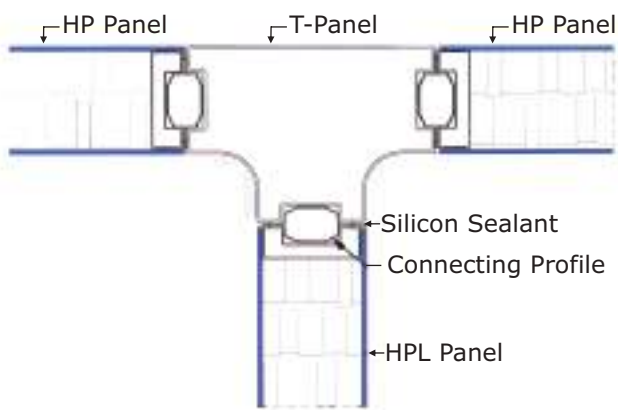
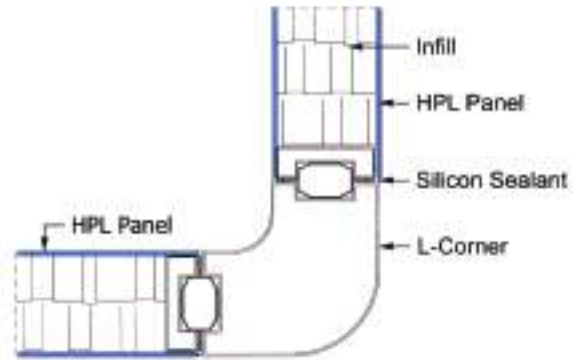




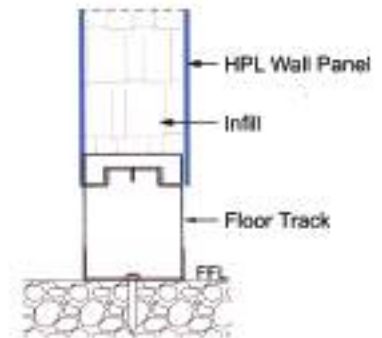
High Pressure Laminate



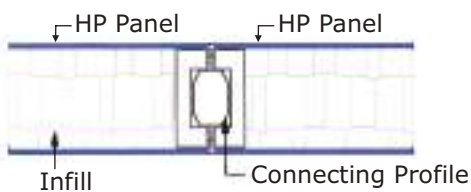
Door to Panel Joint



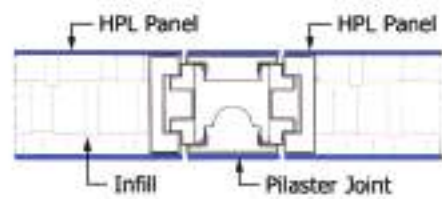
T-Panel Joint



Panel to Floor Joint



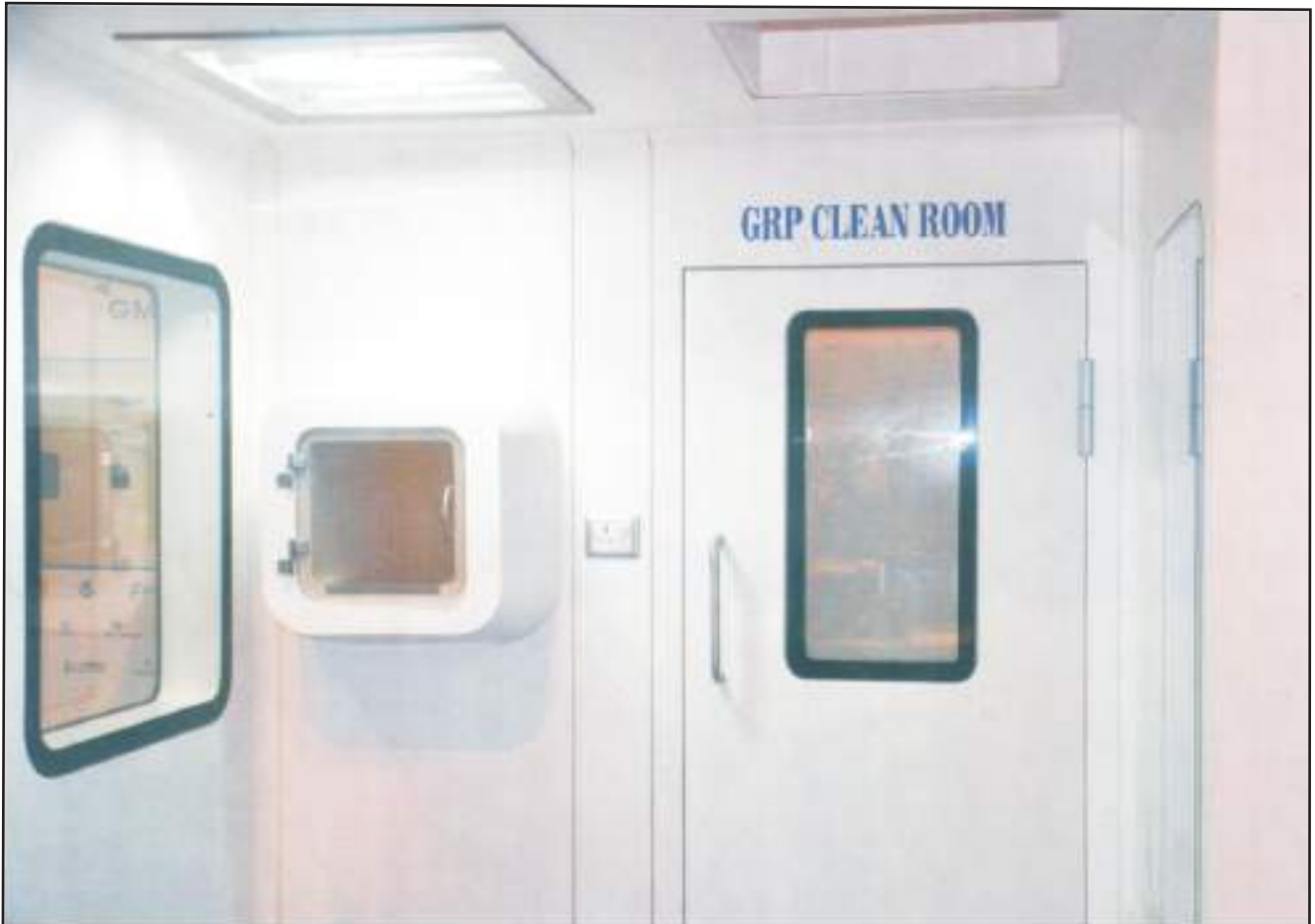
Panel to Panel Joint



Panel to Panel With Pilaster



Glass Reinforced Polymer Clean Room



Advantages of GRP

- Monolithic, non-shredded & Strong
- Chemical & Scratch Resistance
- Durable
- Does not require insulation which reduces the contamination in case physical damages to the partition.



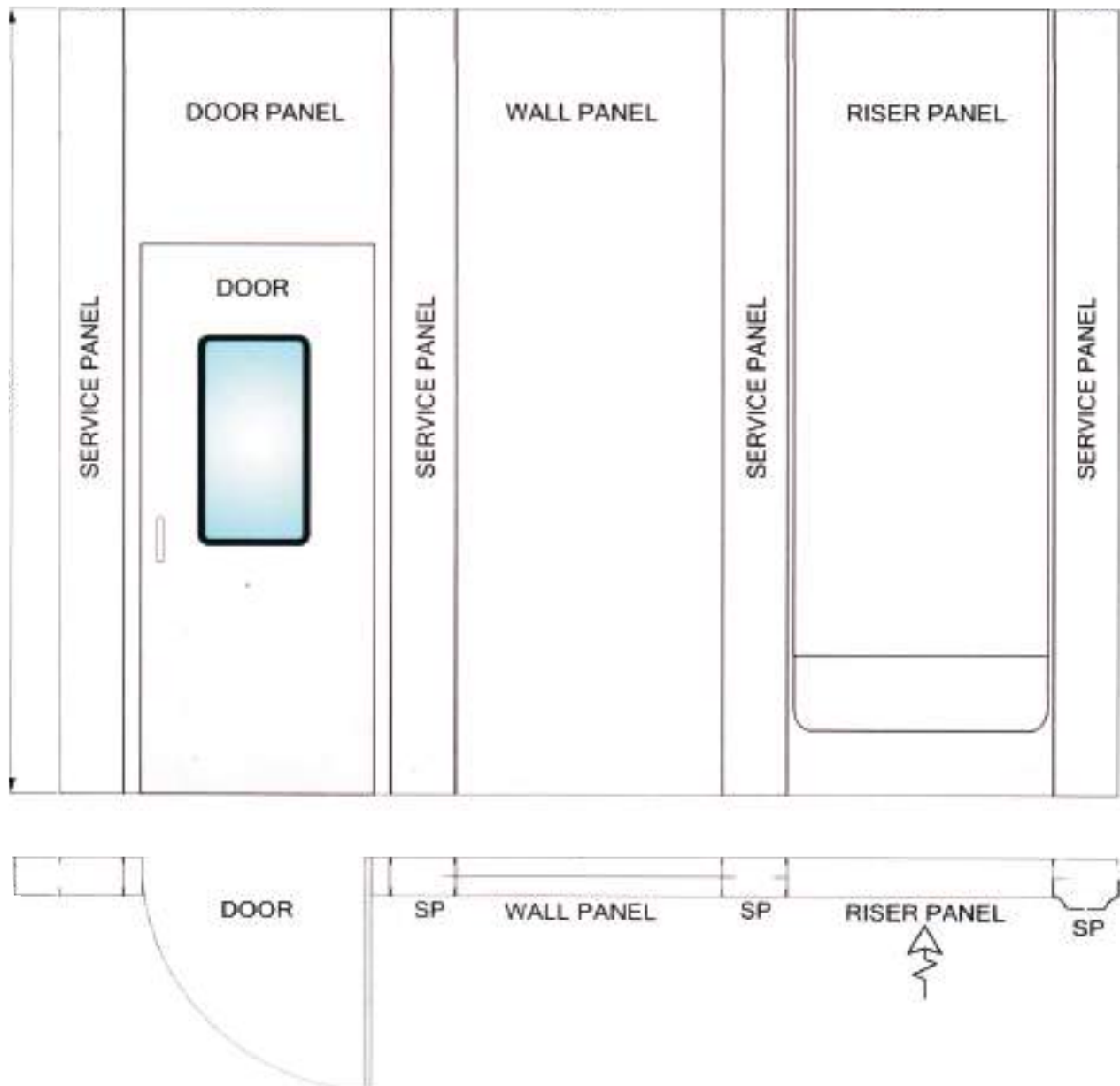
GRP Panels for Clean Room Partitions

Pharma Air has developed the GRP Clean Room walls/systems for use in high purity classes of high degree clean room requirements based on ISO and Pharma Air Standard.

The Partition material is molded composite of strong chopped glass fiber mats and fire retardants "Unsaturated isophthalic polyester resin" complying to IS6746:1994. The resultant is a strong composite having good mechanical & chemical properties.

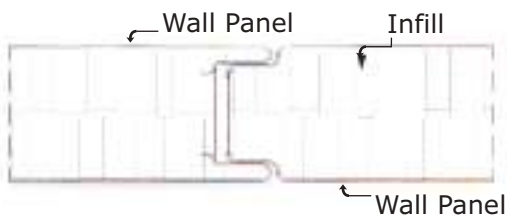
A complete range of partitions walls and ceiling systems are available to meet the technical specifications of controlled environment rooms. Ceiling as well as partitions are inert, non particle-shredded, forming part of clean room aseptic envelope to enable compliance with FDA validation procedures and Pharma Air standards.

Full details of the complementary range of ceiling systems are available on request.

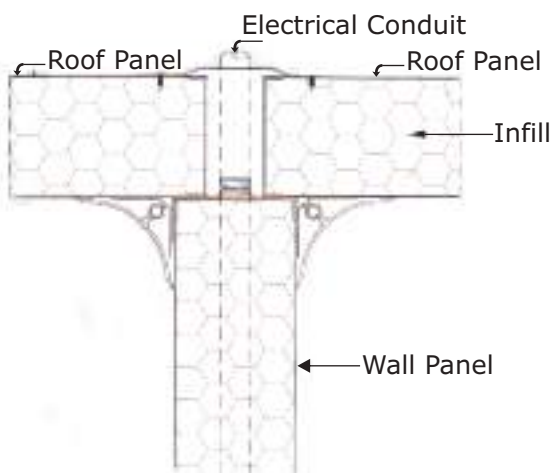




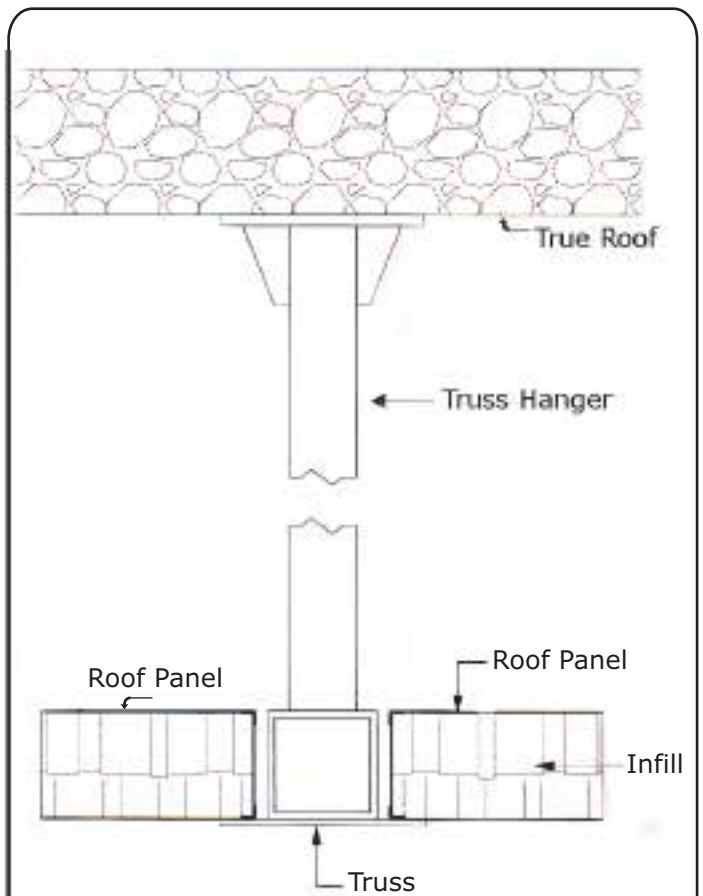
ECO GI Clean Room



Panel to Panel (T & G Joint)



Panel to Roof with Conduit



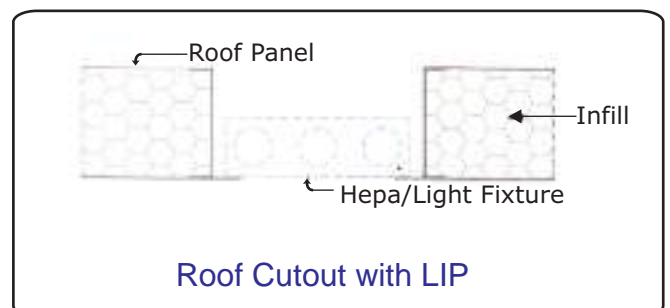
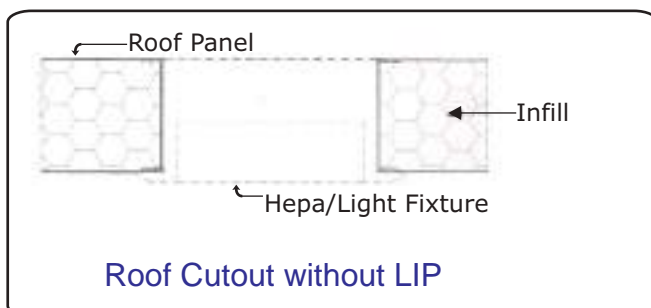
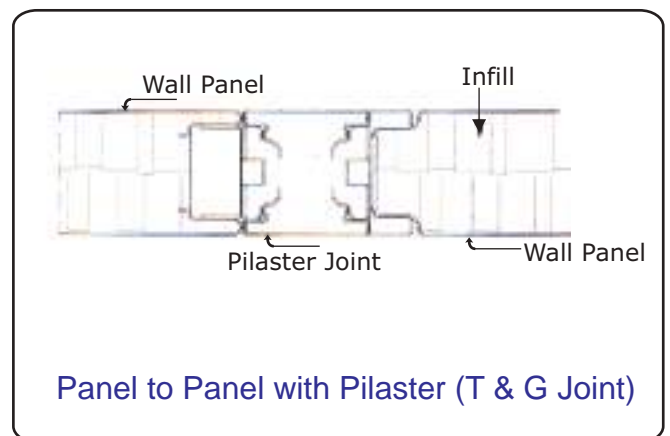
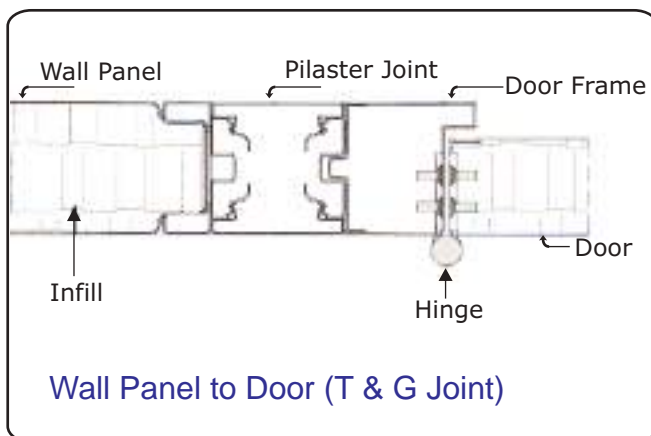
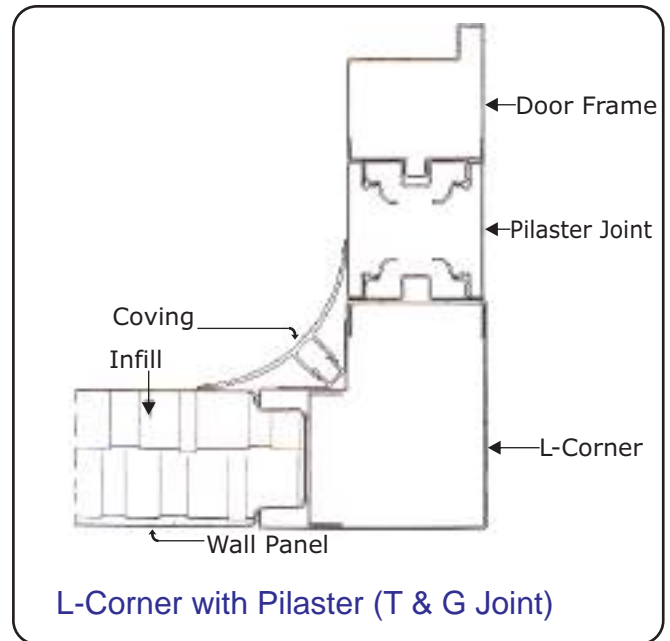
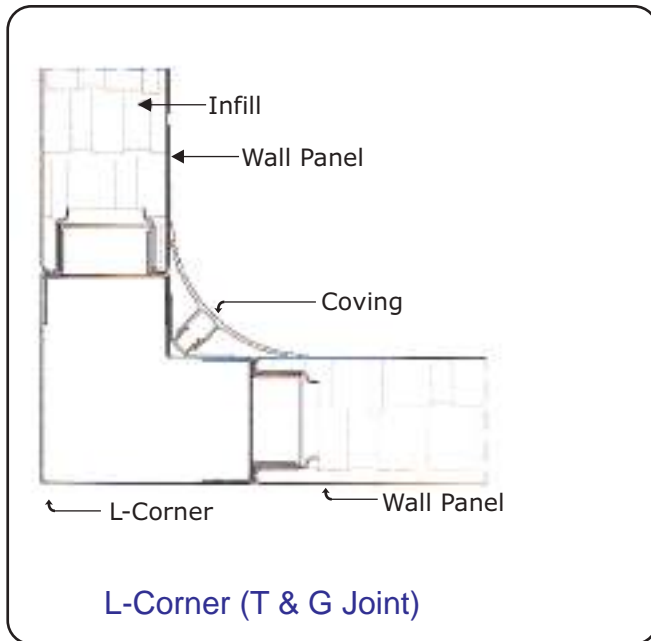
Roof Hanging Detail (T & G)



ECO GI Clean Room Partitions

ECO GI monoblock/modular partitions walls are fabricated by using nominal 2 x 0.6 mm pre-painted GI Sheets. They are bonded with an infill of Polyurethane Foam-Honeycomb Paper core forming a rigid 50-80-100 mm thick panels to modular width of 1000 mm and up to 6000 mm in height.

ECO GI modular walls have been installed in clean rooms throughout the world in a range of Application Area : Pharmaceuticals, Biotechnology, Medical Devices, Food & Beverages, Healthcare / Pathology / Microbiology, Aerospace, Microelectronics, Nano Technology etc.

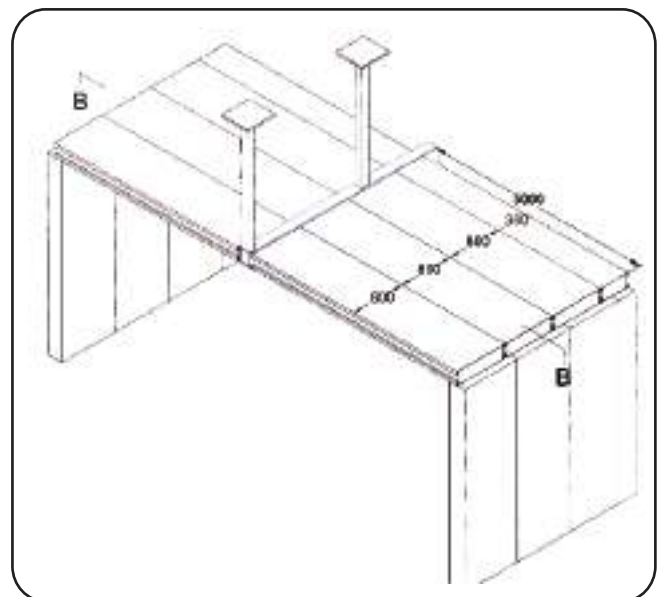
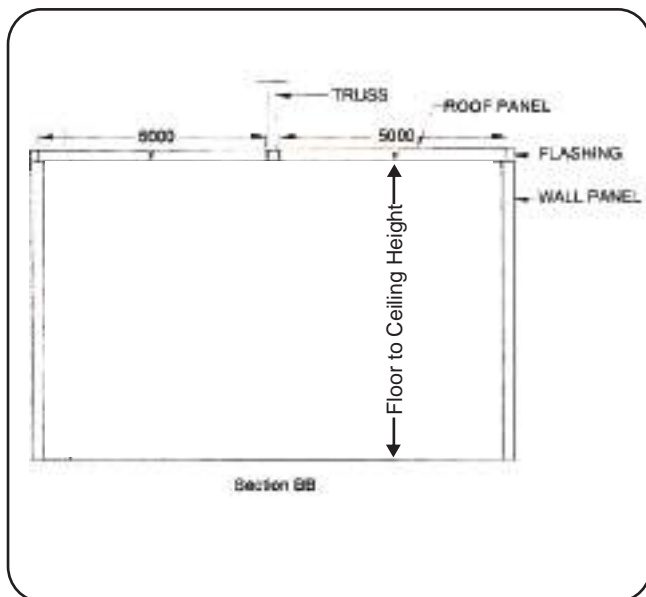




Load Bearing Ceiling

Load Bearing Ceiling Panels are fabricated by using nominal 2 x 1.0 mm galvanized/Stainless steel, Minimal Spangle with Zinc coating 80-120 gsm insulated and bonded with infill of polyurethane foam, honeycomb paper/aluminium core, mineral wool forming a rigid 80 mm thick panel to nominal size as required. Modular width of ceiling panel is 900 mm standard and up to 5000 mm in length. Panels suitable stiffened to allow person to access over the entire surface.

The unique design of the ceiling allows the additional incorporating flush light fittings, air-conditioning filters, grills, diffusers and other ceiling mounted equipment, all fitted within accurately CNC punched apertures. Its unique design enables the structure to stand free of any support [box within a box] from the existing building-structure.



DESIGN CRITERIA

Truss Frame and its posts.

Connection piece of adjacent roof panels.

Wall panel and connection to roof.

Roof panel is 5000 mm (L) x 900 mm (W) x 80 mm thick

Wall Panel is 3000 mm (L) x 1200 mm (W) x 80 mm thick.

Each roof panel is designed to withstand concentrated load of 150 kg (corresponding to 2 persons)

The self weight of roof panel (5000 mm x 900 mm) is conservatively taken as 30 kg/m².

The truss is designated for a maximum span between posts of 14 m loaded to withstand the self weight of as many roof panels to accommodate to the span and a 150 kg concentrated load anywhere on the panels.



Pharma Air Metal Doorsets

Doorsets are specifically tailored to critical requirements of the market with special attention to the use of galvanised - stainless steel - Pharma Air Metal Doorsets are available in different configurations to achieve varying requirements of our clients. In addition to single leaf and double leaf frames, with removable over panels, borrowed light and glazing can be introduced.

- **Fire Rated Door**

Fire Rated Door with fire-resistance rating used as part of a passive fire protection system to reduce the spread of fire between compartments and to enable safe egress from a building or structure. Pharma Air offers fire rated doors with fire resistant levels from 30 minutes to 2 hours.

- **Clean Room Door**

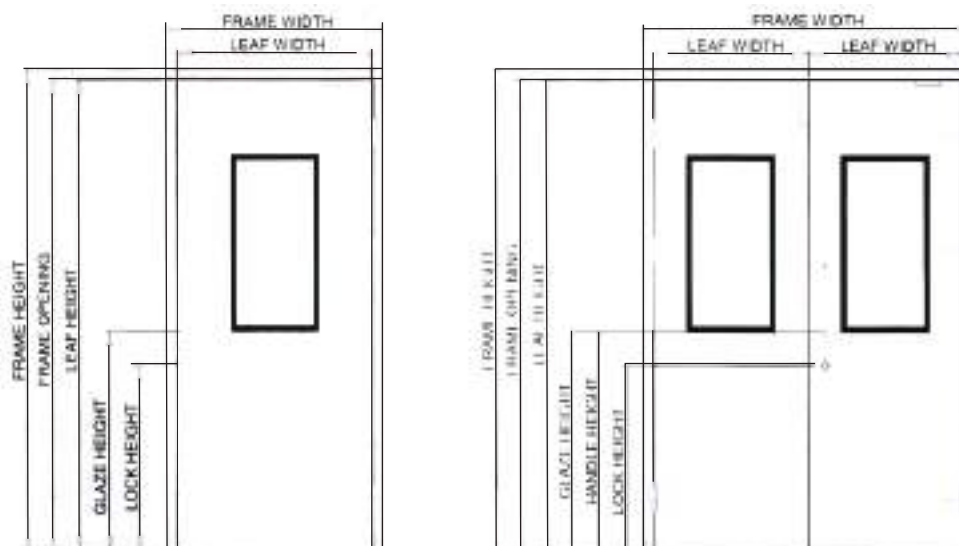
Clean Room Door is manufactured from galvanized steel/ stainless steel sheets with lock formed edges. Insulated firrings with Innovative flush double glazed finished in pure/epoxy polyester powder coating of 60-75 microns forming a smooth surface finish.

- **Industrial Door**

Heavy duty Industrial metal doorsets are available in size up to 3000 mm wide and 3000 mm in high. Doors are capable of accepting glazing in many configurations with air vents, louvers and a wide range of hardware. Doors are pure/epoxy polyester powder coated to 70-90 microns forming a smooth surface finish.

- **Acoustic Door**

Acoustic Door is designed to reduce sound transmission between rooms and to provide sound privacy in any architectural environment. Pharma Air offer acoustic door with special linings, seals and structurally bonded cores to achieve high level of sound reduction.





TECHNICAL SPECIFICATION

TECHNICAL SPECIFICATION	GI	SS	HPL	GRP	ECO PPGI
SKIN	0.6/0.8/1.0 mm	0.8/1.0 mm	3.0/4.0 mm	4.0 mm	0.5/0.6 mm
STRUCTURAL FRAME WORK	GI	SS	ALUMINUM	GRP	NA
INSULATION	PUF/ ROCKWOOL/ PAPERCORE	PUF/ ROCKWOOL/ PAPERCORE	PUF/ ROCKWOOL/ PAPERCORE	NIL	PUF
CONNECTING PROFILE	PVC / AL / GI	PVC / AL / GI	AL	GI	NA
BASE PROFILE	GI RAISED FLOOR TRACK	GI RAISED FLOOR TRACK	GI / AL	GRP	GI (U TYPE)
SEALANT	SILICON SEALANT	SILICON SEALANT	SILICON SEALANT	SILICON SEALANT	SILICON SEALANT
PANEL WIDTH	1120 mm	1120 mm	1220 mm	961 mm	1000 mm
PANEL HEIGHT (MAX)	4500/6000 mm	4500/6000 mm	4500 mm	4000 mm	4500 mm
PANEL THICKNESS	44/60/80/100/160	44/60/80/100/160	66/86	150	60/80/100
POWDER COATING THICKNESS	70-90	NA	NA	NA	30-40
FINISH	POWDER COATED	SS FINISH	LAMINATED	MOULDED	PRE-POWDER COATED
COLOR	AS PER RAL	NA	AS PER SHADE	VARIOUS	AS PER RAL
COVING	R50/R65	R50/R65	R50/R65	R50/R65	R50/R65



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Facilities

with 50,000 sq.ft manufacturing facility, which is well equipped with :

1. Amada CNC Punch Press from Japan
2. Amada CNC Bending Machine Press from Japan
3. Hydraulic Bending machines
4. Hydraulic Cutting machines
5. Advanced Machine Tools
6. Power Presses
7. Roll forming line
8. Powder coating equipment
9. Minipleat HEPA Machine
10. Puff Press & Puff Filling Machine



Marketed, Serviced & Qualified by:

PHARMA AIR MODULAR SYSTEMS

Office Add.:

206 / 213, Vikas Height, 2nd Floor, Opp. HDFC Bank, Santoshi Mata Rd, Rambaug, Kalyan (West) 421 301 Thane, Maharashtra, India.
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Factory Add.: Unit-1

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Dist. Thane Maharashtra INDIA Tel. No. +91-2527-240626

Factory Add.: Unit-2

Plot NO. 63, Atgaon Industrial Complex, Mumbai Nashik Agra Road, Tal. Shahapur 421601
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Email : factory@pharmaair.com / Website : www.pharmaair.com