

# Product Data and Specifications

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## Versatile and Affordable

Legend pre-engineered, modular design cleanrooms are cost effective without the inconvenience of conventional “stick-built” construction.

Legend is available with 2” walls and its non-progressive construction design allows flexibility to expand or change the configuration as needed in the future.

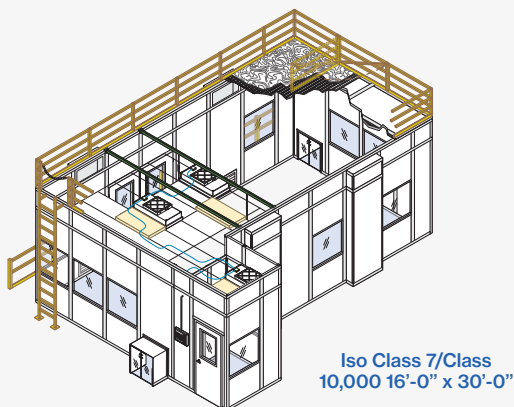
The look of Legend reflects the quality of the system. Its clean visually appealing design utilizes aluminum framing and durable white finished wall panels.

## Flush Mounted Windows

Legend windows are assembled to meet stringent cleanliness requirements. Windows are flush mounted, double glazed tempered glass, in an anodized aluminum frame to allow excellent viewing into and out of the cleanroom.

## Pre-Engineered For On-Site Assembly

Ceiling and wall panels, framing and ceiling T-bar are pre-cut at our factory for assembly on site, resulting in reduced installation time. A complete set of assembly drawings is provided for the installation.



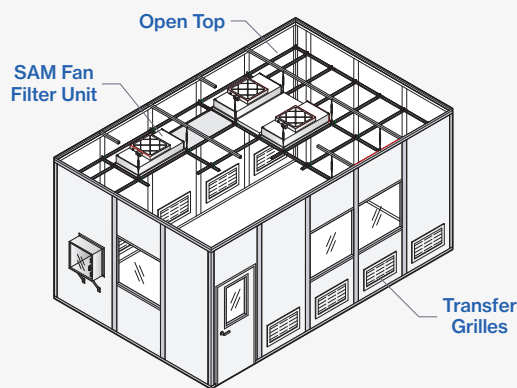


Fig. 1  
Once-Through Design  
Hardwall Cleanroom

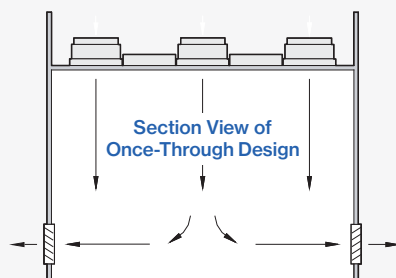


Fig. 2

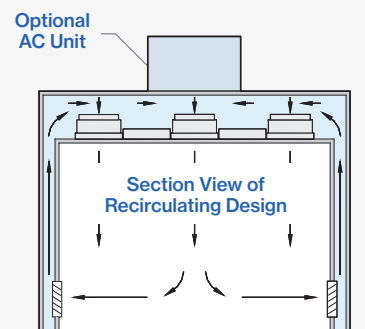


Fig. 3

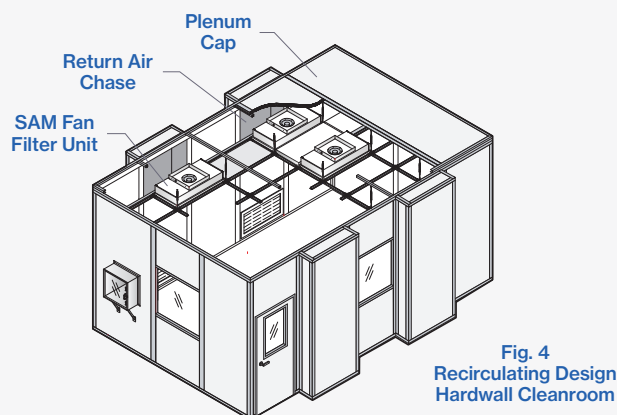


Fig. 4  
Recirculating Design  
Hardwall Cleanroom

## Provides Controlled Environment

Legend Hardwall Cleanroom Wall Panels and Components are engineered to provide a secure controlled environment within the cleanroom.

Ultra-smooth surface wall panels, framing and ceiling components assure consistent pressure in the cleanroom and constant control of air-borne particles. As a result, Legend Cleanroom Systems achieve very high cleanroom performance standards.

## Non-Progressive Design

The Legend wall panel and framing modular design reduces lead time which assures that the cleanroom is in operation on-time and within budget. As needs change in the future, Legend wall panel modular design offers the ability to relocate or expand the cleanroom in the future.

## Special Sizes

Legend wall panel composition and the modular panel construction fulfills requirements for any hardwall cleanroom design and layout. Wall panels can be made in special sizes for entry areas, gowning rooms and air-locks, ensuring that the cleanroom pressure remains constant. Extra-high Legend wall panel systems can accommodate large equipment which require ceilings higher than the standard eight (8) feet.

## Load Considerations

Three factors are considered when determining which wall system to use for load-bearing cleanrooms. The first factor is the amount of total weight on the cleanroom wall, the second factor is the span distance between all four (4) of the cleanroom walls and the third factor is the height of the wall. Consult with the factory for detailed information about your cleanroom project.

## Once Through Design

Once-Through Design is also known as single pass. Ambient air is drawn into the SAM Fan Filter Units at ceiling level. The filtered air passes into the cleanroom and is transferred out of the room through grilles at the bottom of the walls. Refer to Fig. 1 and Fig. 2.

## Recirculating Design

Recirculating cleanrooms are ideal when temperature or humidity control is required.

Conditioned air inside the plenum space is drawn into the SAM Fan Filter Units and the filtered air then passes into the cleanroom. Air from the cleanroom is forced into the return air grilles located in the lower wall sections and is recirculated up the return air chases within the walls to the plenum. Air is mixed with make-up air inside the plenum and drawn through the SAM units again. Refer to Fig. 3 and Fig. 4.

## How Are Cleanroom Standards Determined?

The number and size of particles allowed in the room determines the classification of air cleanliness. As the process in the cleanroom grows less critical, greater quantities of invisible particles may be present without risk, thus the numerical classification of the cleanroom will be higher.

The simple designations of the early U.S. Federal Standard 209, in which a class number was a statement of the number of 0.5 micron particles per cubic foot of air, are gone. Although Federal Standard 209 is most commonly used in the United States, it is now officially retired as of late November, 2001.

The ISO 14644-1 document became mandatory in the European union on November 1, 1999 and is now the worldwide baseline measurement for cleanrooms. Organizations with ISO 9000 certification are now required to utilize ISO 14644-1 for defining clean spaces.

## Guidelines For Selecting Filters

During the initial quotation, design and engineering phases our staff will make the calculations necessary to achieve the desired ISO or U.S. Federal Standard 209 Class. The correct quantity of HEPA or ULPA grade filters will be selected using air changes per hour as the most effective method for meeting class requirements. Right from the start our staff will work with your technical staff to determine if extraordinary design issues must be addressed.

## Installation, Testing and Certification

Customers with in-house contracting or installation capability appreciate the simplicity and easy installation of the Legend Cleanroom Systems.

A network of Authorized Installers enables Clean Rooms International to offer complete installation services. Testing and certification by an independent contractor can be arranged as well.

Whether you choose to install a room yourself or use a CRI Authorized Installer, our staff serves as a liaison and guides the construction or installation process.

## Accelerated Depreciation

Conventional construction becomes a permanent part of the host building and requires the straight-line method of depreciation over as long as 39 years, depending upon current law. A shorter depreciation life for the modular cleanroom results in a quicker write-off and faster payback for the cost of the room.

Modular cleanrooms built from our Legend Cleanroom System can qualify for accelerated depreciation vs. conventional construction because our cleanrooms can be dismantled and moved to another location. Consult with your accountant to determine if favorable depreciation rules apply to your purchase of a Legend Cleanroom System.

### Cross Reference From ISO to Federal Standard 209 Classes

ISO	Federal Standard 209E
1	No Equivalent
2	No Equivalent
3	1
4	10
5	100
6	1,000
7	10,000
8	100,000
9	No Equivalent

### Air Velocity Cross Reference

ISO	Average Velocity	FPM
1	0.305-0.508 m/sec	60-100
2	0.305-0.508 m/sec	60-100
3	0.305-0.457 m/sec	60-90
4	0.254-0.457 m/sec	50-90
5	0.203-0.406 m/sec	40-80
6	0.127-0.203 m/sec	25-40
7	0.051-0.076 m/sec	10-15
8	0.005-0.041 m/sec	1-8
9	No Equivalent	-

Conversions: FPM to M/Sec multiply by .00508  
M/Sec to FPM multiply by 196.85

### Air Changes Per Hour

ISO	Federal Standard 209E	Air Changes Per Hour
1	No Equivalent	500-750
2	No Equivalent	500-750
3	1	500-750
4	10	540-650
5	100	430-600
6	1,000	150-210
7	10,000	50-90
8	100,000	18-35
9	No Equivalent	-