



Types Of HVAC Filters - ASHRAE

1. Prefilter (G Class)

2. Medium Filter (F Class)

3. HEPA Filter (H Class)

4. ULPA Filter (U Class)



Pleated filter
coarse filter



Pocket filter
ePM10 to ePM1
M6 to F9
MERV 11 to MERV 16



Compact filter
ePM10 to ePM1
M6 to F9
MERV 11 to MERV 16



Box filter
ePM10 to ePM1
M6 to F9
MERV 11 to MERV 16



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Deep pleat filter
EPA/ HEPA



Vbank filter
EPA/HEPA



Panel filter
HEPA/ULPA



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Design Parameters For Filters

- Energy Consumed By the filter/ Pressure Drop
- Level of air cleanliness/ Filter Efficiency
- Environmental Conditions(Humidity, Temperature, Microbial treatment etc.).
- Air Flow.



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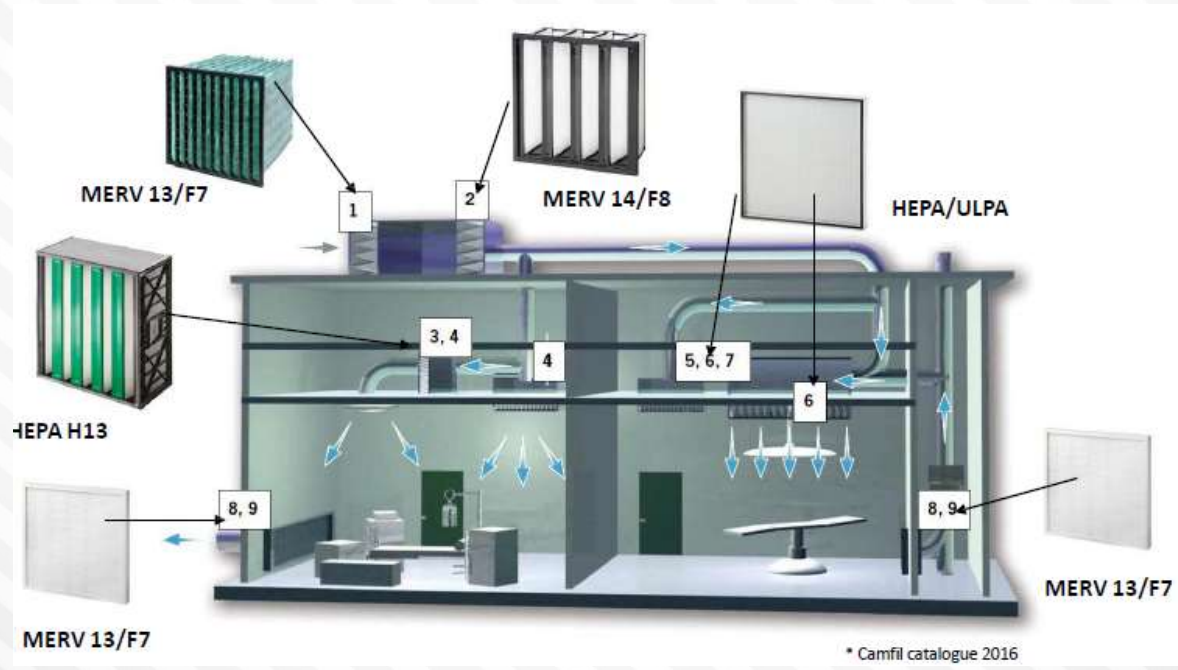
Filtration System can be commonly found in :

- Hospitals
- Airports.
- Commercial Buildings.
- Manufacturing Facilities.
- Clean Rooms.
- Agricultural Forms.
- Residential Etc.

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Hospitals(Filtration Common Detail)





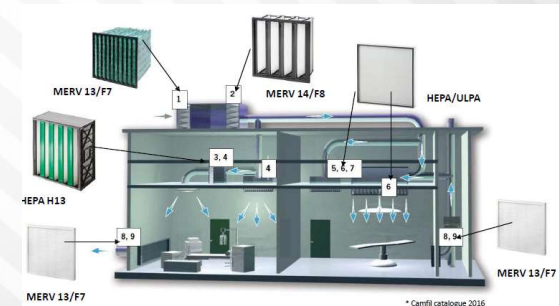
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Hospitals(Filtration Common Detail)

HEPA filters are critical in the prevention of the spread of airborne bacterial and viral organisms and, therefore, infection.

Typically, medical-use **HEPA filtration systems** also incorporate high-energy ultra-violet light units to kill off the live bacteria and viruses trapped by the filter media.

Some of the best-rated **HEPA units** have an efficiency rating of 99.995%, which assures a very high level of protection against airborne disease transmission.



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MERV RATING CHART

Standard 52.5 Minimum Efficiency Reporting Value	Dust Spot Efficiency	Arrestance	Typical Controlled Contaminant	Typical Applications and Limitations	Typical Air Filter/Cleaner Type
20	n/a	n/a	< 0.30 pm particle size	Cleanrooms	>99.999% eff. On .10-.20 pm Particles
19	n/a	n/a	Virus (unattached)	Radioactive Materials	Particles
18	n/a	n/a	Carbon Dust	Pharmaceutical Man.	Particulates
17	n/a	n/a	All Combustion smoke	Carcinogenic Materials	>99.97% eff. On .30 pm Particles
16	n/a	n/a	.30-1.0 pm Particle Size	General Surgery	Bag Filter - Nonsupported microfibre fiberglass or synthetic media, 12-36 in. deep, 6-12 pockets
15	>95%	n/a	All Bacteria	Hospital Inpatient Care	
14	90-95%	>98%	Most Tobacco Smoke	Smoking Lungs	Box Filter - Rigid Style Cartridge Filters 6 to 12" deep may use lofted or paper media.
13	89-90%	>98%	Propel Nuclei (Sneeze)	Superior Commercial Buildings	
12	70-75%	>95%	1.0-3.0 pm Particle Size Legionella	Superior Residential	Bag Filter - Nonsupported microfibre fiberglass or synthetic media, 12-36 in. deep, 6-12 pockets
11	60-65%	>95%	Humidifier Dust Lead Dust	Better Commercial Buildings	
10	50-55%	>95%	Milled Flour Auto Emissions	Hospital Laboratories	Box Filter - Rigid Style Cartridge Filters 6 to 12" deep may use lofted or paper media.
9	40-45%	>90%	Welding Fumes		
8	30-35%	>90%	3.0-10.0 pm Particle Size	Commercial Buildings	Pleated Filters - Disposable, extended surface area, thick with cotton-polyester blend media, cardboard frame
7	25-30%	>90%	Mold Spores Hair Spray	Better Residential	Cartridge Filters - Graded density viscous coated cube or pocket filters, synthetic media
6	<20%	85-90%	Fabric Protector Dusting Aids	Industrial Workplace	Throwaway - Disposable synthetic panel filter.
5	<20%	80-85%	Cement Dust Pudding Mix	Paint Booth Inlet	
4	<20%	75-80%	>10.0 pm Particle Size Pollen	Minimal Filtration	Throwaway - Disposable fiberglass or synthetic panel filter.
3	<20%	70-75%	Dust Mites Sanding Dust	Residential	Washable - Aluminum Mesh
2	<20%	65-70%	Spray Paint Dust		
1	<20%	<65%	Textile Fibers Carpet Fibers	Window A/C Units	Electrostatic - Self charging woven panel filter.

