



# Filtration and Filters

In order to clean the air it is passed through filters that remove the airborne dust particles and ensure delivery of clean air to the conditioned spaces. We have seen how important the quality of air is in the airconditioning system and filters play an important part in delivering good air quality. The filters keep the cooling coils from clogging thereby maintaining the efficiency of heat transfer. Without a good air filtration system the diffusers in the rooms 'streak' and fluorescent lamps gather a film of dust that cuts illumination. Dust choked filters interfere with the performance of the air system. It is therefore very important to clean or replace the filters periodically.

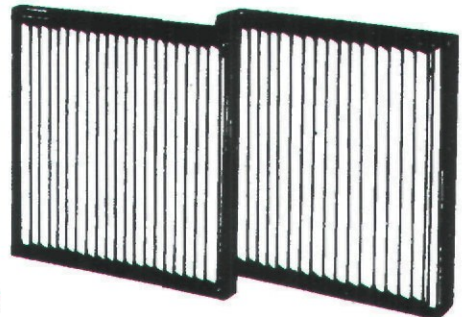
**Table 7.** Air-borne particle sizes

	Diameter (microns)
Raindrops	400 - 500
Drizzle	100 - 400
Mist	50 - 100
Fog	1 - 50
Human Hair	30 - 200
Dust	0.1 - 100+
Fumes	0.1 - 1
Smoke	0.001 - 0.3
Pollen	10 - 60
Dust	0.5 - 5
Tobacco smoke	0.03 - 0.3
Oil smoke	0.03 - 1
Lint	10 - 75
Fly ash	0.2 - 200
Fungus spores	1 - 20
Bacteria	0.25 - 30
Viruses	0.0025 - 0.05

## Pleated Panel type Filter

The typical filter in use is the **Pleated Panel** type also known as the Synthetic Media Extended Surface type filter. The pleated panel type filter consists of a porous fabric like material folded like an accordion (to increase the surface area) and fitted into a frame.

As a point of interest the table alongside will give you an idea of the relative sizes of airborne particles.



**Fig. 47.** Pleated panel type filter