



Air Conditioning Filters Fact Sheet

CLEARING THE AIR ABOUT AIR CONDITIONING FILTERS

What is the purpose of an a/c air filter? As conditioned air is blown from the supply ducts into the occupant's space, it picks up dust, pollen and other particles which get carried back to the air-handling unit through the return air duct. The filter intercepts some of these particles to keep them from coating and clogging up the blower, cooling coil and ductwork. If these areas get dirty, airflow is restricted and the unit can't do a good job of cooling. Comfort is reduced; operating and maintenance costs rise and the equipment can wear out prematurely.

Some filters not only protect the equipment they also improve the quality of the conditioned air in the space. Better air quality means better health for the inhabitants, especially in regard to reducing respiratory ailments and allergies. The more you want to filter out, the higher the efficiency the filter needs to be. **Look for the ASHRAE 52.1-1992 "dust spot efficiency rating". It's the only reliable test at the present time.**

The following descriptions of the 6 most common types of filters can help you make a good choice:

- **STANDARD PANEL FILTERS** (usually made of woven, fiberglass strands) have been commonly used for years and can be found at hardware or home products stores, even grocery stores. They often cost less than a dollar and usually need to be changed once a month. They have a **dust spot efficiency of less than 5%**, which provides very little protection to your a/c equipment and virtually none to your health.
- **ELECTROSTATIC FILTERS** are another common type of filter that can be found at larger home-improvement stores. Prices vary widely—roughly \$10 to \$125. They can be washed and reused but clog up easily so maintenance is important. They have a **dust spot efficiency ranging from 10% to 15%**, which is only slightly better than standard panel filters.
- **EXTENDED-SURFACE FILTERS** (also know as pleated-media filters) are also available at larger home-improvement stores as well as most a/c supply houses. The most common thickness is 1-inch and will have a **dust spot efficiency range from 20% to 40%**. This efficiency will offer medium protection to the a/c equipment. The price generally ranges from \$4 to \$10. The 1-inch filter will last about 3 months. Pleated-media filters are constructed with a cardboard frame. Larger thickness filters are available which will result in a longer filter life; however, the increased thickness will likely restrict air flow which would require an adjustment to the air-handling unit in order to deliver the designed air flow.
- **POLYESTER FILTERS** are usually found at a/c supply houses. Their performance characteristics are similar to the extended surface filter; however, they are usually sold in bulk without a filter frame. It is therefore recommended to have a reusable frame built to firmly hold the filter in its proper position.
- **ELECTRONIC AIR FILTERS** are very effective with a **dust spot efficiency of 90% or greater**. The average price is about \$750 and they require frequent maintenance. These

type of filters need to be custom-built to fit in the return air duct and also require electricity to operate, which is an added expense. The air-handling unit may need to be modified in order to compensate for the increased resistance to the airflow caused by the filter.

- HEPA FILTERS (high-efficiency particulate arrestor) are extremely effective with a **dust spot efficiency greater than 99%**. These filters require specifically designed air handlers and ductwork, which most commercial and residential systems do not have. They are normally designed to be used in conjunction with a pre-filter such as an extended surface filter. Most businesses do not require this level of filtration unless there are occupants or equipment that has that need, for example, a clean-room in a semi-conductor plant or a surgical suite in a hospital.