

# AIR FILTERS

Most Central Texas homes have forced-air heating and cooling systems. An important part of the system is the air filter, which the homeowner needs to maintain.

## What Does A Filter Do?

As conditioned air is blown from the supply ducts into the living space of a home, it picks up dust, pollen, and other particles, which get carried back to the indoor unit through the return air. The filter intercepts some of these particles to keep them from clogging up the blower and cooling coil. If the blower and coil get dirty, airflow is restricted, and the unit can't do a good job of cooling. Comfort is reduced, operating costs rise, and the equipment wears out prematurely.

A good filter improves indoor-air quality as well as protecting the equipment. Better air means fewer respiratory ailments and allergies.

## Which Filter Is Right For You?

### • **What do you want to filter out?**

Is your family in reasonably good health now, and you want to help them stay that way, or do you have family members with special health problems, such as serious allergies and asthma? Do you have pets, which shed a lot of dander and hair?

The more you want to filter out, the higher the efficiency of the filter needs to be. The “dust spot” efficiency, referenced below, is the most reliable test. It is typically not listed on the filter, but serves as a basis of comparison. More commonly found is the “MERV” rating (Minimum Efficiency Reporting Value). It tells you the filter's ability to capture particles between 3.0 microns (the size of a human hair) and 10.0 microns, on a scale of 1 to 16. The higher the number, the better. Particles this big make up only about 1% of the particles in the air, however. Note, too, that efficiency changes over time.

### • **Can the filter be easily added to your present system?**

Filters affect air-flow (the better the filter, the more effect it is likely to have), so they must be matched to your system. Some filters require more space than others.

### • **How much maintenance are you willing to do?** Do you often forget to change the filter?

Are you willing to do a regular cleaning job?

### • **How much can you spend?**

Prices vary, but cheaper filters require more frequent replacement.

## What Filter Types Are Available?

### 1. **Panel filters** (1" thick)

- Dust spot efficiency less than 5%; MERV of <1; filters particles over 10.0 micron (e.g. pollen, dust mites)
- Provide very little protection to AC equipment, and virtually none for air quality
- Change monthly
- Not recommended

### 2. **Electrostatic filters** (1" thick)

- Dust spot efficiency 10%-15%; MERV of 1—2; filters particles over 10 micron (e.g. pollen, dust mites)
- Clean once per month
- The electrostatic charge plays almost no role in particle-capture
- Not recommended

### 3. **Pleated-media filters** (1"—6" thick)

- Dust spot efficiency 20%—75%; MERV of 8—12; filters particles 3.0—10.0 micron (e.g. mold spores)
- Deep pleated-media filters (4" or more) require more space and have more effect on air-flow
- Change every six months to a year (service technician can check and change it at bi-annual equipment maintenance check-up)

HEALTH

- Highly recommended

#### **4. Electronic air cleaners**

- Dust spot efficiency 90%; filters particles .30—1.0 (e.g. bacteria, tobacco smoke, insecticide dust)
- Must be custom-built to fit in return air duct
- Need frequent maintenance
- Very expensive
- Caution--may produce small amounts of ozone, which is irritating to some people

#### **5. HEPA filters**

- Dust spot efficiency 98%; filters particles < 0.30 (e.g. viruses, all combustion smoke)
- Require special high pressure blowers and ducts; used for “clean rooms”, not typically used in homes