

Why Filter Your Air ?

To Protect your Health

- The air we breath is a sea of particles (most too small to be seen with the naked eye) that includes dust, pollen, bacteria, mold spores, mineral dust, animal hair and dander. It is everywhere and works its way into our clothes, furniture, computers, and lungs. The average person breathes about two gallons of air per minute. These can act as carriers for viruses, bacteria, and other harmful pollutants. This can lead to simple minor allergies or worse.



To \$ave Money

- Yes, I said save money. Your heating and air conditioning system is most efficient when the air flow is at its peak performance. Quite simply put, if your A/C coil or ductwork is clogged, the airflow is diminished. That means the system must run longer to heat or cool the same amount of space. So if you filter the air as it enters the system, your equipment won't get clogged up. If you neglect the filter (or just don't have one) long enough, the A/C coil will get so clogged that the air conditioning evaporator coil will freeze into a solid block of ice. To repair this will require a service technician to take the system apart and clean it. This is very labor inten\$ive.

Esthetics

- You take pride in your home. You vacuum the floor, you dust the furniture, you wash the fingerprints off the walls. So where did that ugly black film around the supply air registers come from? In a new home it is usually a sign of extreme filter neglect (you know, no filter). In an older home it can be a sign of dirty air ducts caused by using an inefficient air filter. At any rate it is dirt, smoke, pollen, and dust that was not caught by the filter. You can wash it off but it will come back.

The solution at this stage is:

- Have the air duct system cleaned
- Get an air filter (or a better one).

If the ugly register syndrome has not yet begun you can do something about it now.

- Get a filter and put it in.

Now you need to know what is available out there and what will fill your needs.

Electrostatic Air filter

- An electrostatic Air Filter is very efficient. It removes up to 95.3% of airborne particles.
- An electrostatic filter uses electrostatically charged polypropylene and polyurethane filtration medias to attract particles as small as .3 micron. (1 micron = 1/25,000 in.). A safe static charge is produced by forcing air across the filter. This static charge attracts and traps airborne particles into the filter just like a magnet.

Microscopic View



Energy \$avings

- In addition to keeping the ductwork clean longer, an electrostatic filter can also help keep air conditioning coils from being coated with particulates.
- Cleaner coils function more efficiently so the system operates less minutes per hour.

Allergy Relief

- Asthma, allergy, and respiratory symptoms are often reduced when exposure to dust, mites, pollen, mold spores, and animal dander is controlled with an electrostatic air filter.
- Sleep patterns and over-all personal comfort are generally improved in an environment of clean air.

Housekeeping

- Household dust will be collected in an electrostatic air filter when the central system is operating.
- Less frequent dusting will be a welcome benefit to housekeepers.

Easy to Maintain

- Simply clean the electrostatic filter every 3 – 4 weeks with mild soap and water.

Electronic

Electronic air filters were for many years, the best type of filter available to the general public. They require household current to operate. In general they work as follows:

- 110 Volts AC is stepped up to about 5,000 Volts DC.
- This high voltage is transmitted to electrodes inside the filter grid as air is forced across it.
- Particles of dust will "short" across the electrodes causing an arc of electricity that gives the particles a static or positive charge.
- Electrodes further inside the filter are charged with an opposite or negative static charge.
- In electricity as well as magnetism opposites attract and the positively charged dust particles are attracted to and stick on the negatively charged electrodes.
- The filter is periodically cleaned with soap and water to remove what it has collected.

Electronic air cleaners can be quite efficient (70 - 90%) but they do have a downside.

- First, they are noisy. They sound like a bug zapper and this goes on as long as the system is running. Many people find this to be quite annoying.
- Second, they tend to lose efficiency as they get older.
- Third, they are a bit expensive to buy and if they break (for example during cleaning) you must pay to have them repaired (if it is fixable).
- And finally, you need a qualified professional to install or service them.

Disposable

Disposable air filters:

- The most common is the standard fiberglass media filter with a cardboard frame. It looks like cotton candy in a box. If you hold it up to a light you can see right through it. This type of filter will cost you about \$1.00 US if you get it from your local grocery or hardware store. You just install it in your furnace or filter grill and throw the old filter away. They are not very efficient but they do offer some protection to keep your air conditioning coil from getting clogged up. They only remove the large particles of dust. While better than nothing, they are not a lot better.
- The most simple way to demonstrate this is to pour a handful of fine dirt on to the filter and watch how much falls through it.

These type of filters will only remove approximately 10 - 15% of the dust in the air. That means that about 85 - 90% of the dirt, dust, pollen, and other air born pollutants will pass through the filter and either become lodged in the evaporator coil (which over time can and will cause the air conditioner and furnace to run inefficiently, increasing electrical and gas consumption), or put the contaminants back into the air stream for us to breath. Breathing airborne pollutants often triggers allergy, asthma, and hayfever symptoms.

Sizing

- The better the filtration, the more resistance to air flow, which makes the unit work harder. Always increase the size of the filter to allow the unit to maintain proper internal pressures, and save energy.