

The Air You Breathe

What's in your air and what can you do about it

Unfortunately, in today's world, pollution is everywhere. And with the type of cleaning products, manmade goods, and activities undertaken within homes and buildings, indoor environments can become very uncomfortable. Even “fresh,” outdoor air has as many as 30 million dust or pollutant particles per cubic foot.

There are, however, measures you can take to lessen the effects of these particles in your home. Since the home is essentially an enclosed system, heating, ventilation, air conditioning, and refrigeration (HVACR) contractors are able to tackle pollution head-on by moving the air through a high-efficiency air cleaner.

What does an air cleaner do?

At its most basic level, an air cleaner filters out the particles that cause irritation, such as pollen, spores, dust, and other contaminants. In order for any air cleaner to work correctly, the particles need to pass through it. Hence, if the particles are not in the air stream (for example, they're dust on furniture), an air cleaner won't remove them. However, a good air cleaner will:

- Remove allergy-causing particles that pass through it.
- Perform well consistently.
- Be economical to maintain.
- Handle a large volume of air efficiently.

How can an air cleaner help with allergies?

A good air cleaner reduces or removes the irritants that cause allergic symptoms. You may choose a portable air cleaner for smaller spaces or a whole-house air cleaner that works in conjunction with your forced-air system to provide cleaner air throughout your home.

What kinds of residential air cleaners are out there?

There are basically two: furnace-mounted, whole-house units and portable single-room units. Both types of cleaners have different models with varying methods of cleaning the air and capacities for doing so. Your dwelling may help determine the right unit for your needs. A room air cleaner may be best in an apartment, for example, while a whole-house unit might work better with a furnace and air conditioning system. It's important to note that both room and system air cleaners come in a variety of models, and that not all models use the same technology to clean the air.

Each kind of air cleaner has its pros and cons, which may differ depending on your air-cleaning requirements. Take a look at what your needs are based on your dwelling and allergies and talk to your professional HVACR contractor about the best kind for you.

What are the most effective air cleaners?

Media Air Cleaners

These units use high-efficiency pleated filters, or “media,” to remove about 99% of larger particles, including many allergens. With irritants in the spore and pollen range, they are as effective as HEPA filters but not as effective in filtering out the super-small particulates such as bacteria, viruses, and respirable dust. Media air cleaners are cost effective compared to HEPA filters because the filters are usually less expensive and generally need to be replaced only every one or two years.

HEPA Air Cleaners

HEPA (High Efficiency Particulate Air) cleaners also use high efficiency pleated media to remove particles. To be designated HEPA, an air cleaner must remove 99.97% of all particles 0.3 microns in size (such as dust and mold spores). Due to high cost, operational complications, and other problems, HEPA units are usually seen in residential applications as one-room, portable units. When media in these units need to be replaced, it's often relatively expensive to do so. Some require charcoal filters that need to be cleaned frequently. Warranties for HEPA cleaners are normally one to three years.

Electrostatic Air Filters

these energy draining systems have come a long way in terms of efficiency, size and noise levels. If your equipment is more than 15 years old, you can most likely save as much money in lower utility costs over a couple years as you spend replacing them with a new, quiet efficient system. Plus, new tax credits and incentives [anchor to Tax Incentives Info below] make replacing older units a logical choice. Regardless of age, all HVAC equipment should be serviced annually by a certified professional to maintain efficiency.

Electronic Air Cleaners

There are two types of electronic air cleaners. Both electrically charge particles and attract them to a collection material. The standard electronic air cleaner will collect charged particles on a specially designed “plate.” Most electronic cleaners can obtain 95% efficiency or higher on various particles when the collection plates and ionizing wires are clean, but they can lose some efficiency as they collect dirt.

A newer technology in electronic air cleaners is called “electronically enhanced media” combining elements of both electronic and media air cleaners. Particles are electrically charged and then collected by the massive air cleaning media of a traditional high-efficiency cleaner. Because the replacement of the media is simple and there are no plates to clean, efficiency is maintained throughout the media's life. Electronically enhanced media air cleaners are 99% effective in the removal of numerous particle categories. Electronic air cleaners generally have warranties of one to five years.

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