



Learn 4 Types of Whole House Air Filters – How Do They Work?

Description

To clear the air and enhance indoor air quality, whole-house and portable filters catch dust, pollen, and other particles. There is no place like home when it comes to air pollution.



Today's more tightly built homes keep the weather out but also toxins in. According to the Environmental Protection Agency, the air we breathe indoors, where we spend up to 90% of our time, might be more contaminated than city smog. And the dirt you see is only the beginning.

That dust on end tables and bookshelves is only a portion of what's in the air: an unseen combination of dust mites, pollen, dander, mildew, and smoke that can be irritating to breathe and hazardous to your health. Keeping a house clean and well ventilated is the first line of defense against airborne contaminants.

However, for some sensitive persons, this may not be sufficient. This is where air filters come into play.

How Do Air Filters in the Home Work?

Household air filters are classified into two types: media filters, which form a physical barrier that

captures minute particles, and electronic filters, which attract and catch impurities using a high-voltage charge.

A few hybrid air filters incorporate both technologies, and some include activated carbon particles to reduce odor. Learn about the many types of air purifiers listed below.

Air filters are often included in the heating and cooling system (whole home filters) or stand-alone units that can be placed in particular rooms (portable filters with self-contained fans).

There are four types of whole-house air purifiers. The most efficient approach to filter household air is to use the forced-air heating or central air-conditioning system in your home. The filters are installed in the return-air ducting and capture particles as the air travels through. Such systems are passive; as long as the fan is operating, they continuously filter all the air in your home.

1. Flat Filters

If you have a forced-air furnace, you already have a basic air-filtration system: that matted-fiberglass filter that should be replaced once a month. “You can’t change it often enough,” says plumbing and heating expert Richard Trethewey of This Old House.

It stops working and overworks the furnace when it becomes clogged with dust. In truth, those filters are intended to protect your furnace from massive dust particles, and while they may keep surfaces in your home cleaner, they will not block the small particles most irritating to lung tissue. Pleated filters, which pack more material into the same area, are slightly more expensive but perform somewhat better.

By far, the most effective pleated filters are electrostatically charged to attract allergens such as pollen and pet hair.

They are about \$15 each and should be replaced every two to three months.

2. Extended Media Filters

Consider an extended media filter a stack of furnace filters about 8 inches thick. These boxy units include an accordion-style pile of filtration media, making them more effective than standard fiberglass filters. Because the huge filter holder must be plumbed into the ducting, they require professional installation. The price, including installation, runs from \$400 to \$600; the \$40-to-\$60 filters must be replaced every year.

3. Electronic Filters

These high-tech machines, also known as electrostatic precipitators, are built into the ducting. A high-voltage current charges particles as they move through the air. At the other end of the unit, oppositely charged collection plates act like magnets, attracting particles.

Electronic filters perform exceptionally well on smoke particles that are too tiny to be caught by media

filters. According to one independent test, such filters performed nearly 30 times better than standard fiberglass filters. (Because performance is affected by a home's blower and ductwork, there is no industry benchmark for gauging the effectiveness of whole house systems.)

Electronic filters, unlike media filters, do not need to be replaced, but the aluminum collector plates must be cleaned in soapy water every few months. Ionization, the process of charging particles, may produce tiny levels of ozone, a lung irritant. Installing electronic filters costs \$600 to \$1,000 and requires a 120-volt electrical outlet.

4. Ultraviolet Filters

People who are primarily concerned about germs should consider purchasing a UV filter. UV filters are typically built-in components that are sold as add-ons to a whole-house electronic precipitator (as in, \$400 to \$800). Because ultraviolet light kills airborne germs and viruses, hospitals utilize UV air filters in tuberculosis wards.

Of course, the bug must pass through the filter before it can be zapped; UV technology will be useless if someone sneezes in your face.

Do They Help You Feel Better?

In general, air filters perform a decent job of cleansing the air. Do they, however, make you feel better? The medical decision is still pending. According to Andrew Filderman, M.D., a pulmonary specialist in Rockport, Maine, there have been no controlled studies on the matter.

"We know these things filter stuff, but we're not sure if they help," he explains.

"It's difficult to prove because there are so many inflammatory things in the air, and you never know what's causing the problem."

According to Dr. Filderman, while some allergy or asthmatic patients claim advantages from air filters, the proof is still anecdotal.

"It's not unreasonable to attempt a filter if source control and ventilation don't help," he says.

Category

1. Lifestyle

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