

# HEPA Air Cleaner Selection Guide

## What is a HEPA Air Filtration Unit?

True High Efficiency Particulate Air (HEPA) filtration units are designed to capture at least 99.97 percent of fine airborne particles larger than at least 0.3 micrometer (0.00001 inch) as specified by the United States Department of Energy. Ultra-fine particles are things like dust, pollen, mold, asbestos, and hazardous pollutants in wildfire smoke. The fine particles are the most common and dangerous components of wildfire smoke.



HEPA filtration units are generally equipped with replaceable pre-filters that also remove larger particulate matter, such as pollen and dust. Filtration units range in size from small portable units up to central heating and cooling systems for entire buildings. Effectiveness depends largely upon how much filtered air they deliver over a given period into a specified space.

## Why Use a HEPA Filter?

Indoor air pollution comes from a combination of particulate matter including dust, mold, pet dander and particles from smoke and cooking stoves. Particulate matter may also include pollutants from vehicle exhaust, smoke, and chemical fumes and can be far worse than the pollution outside. Using a quality HEPA filter can help trap these pollutants and create a cleaner indoor environment. If you or someone in your family suffers from asthma or severe allergies, using a HEPA air purifier can significantly improve your quality of life inside your home.

## How to Use a HEPA Air Purifier

**To use an air purifier follow these steps:**

1. Allow it to run 24 hours a day
2. Keep it in one location
3. Close all doors and windows in that area
4. Leave 18-24" of space around the back and sides of the unit
5. Check and replace filters regularly



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## Coverage Area: Where to Place Your Filter

- ◆ Buy a unit to fit the room where it will be used most frequently.
- ◆ HEPA filters use a CFM rate (cubic feet of air processed per minute) or a CADR (Clean Air Delivery Rate) to calculate the size of the room the filter can handle to reach 4 air changes per hour (ACH).
- ◆ Choose a filter with a CADR of at least 2/3 the room's area.  
*Example: 10' x 15' room (150 square feet) would require a filter with a tobacco smoke CADR of at least 100 to exchange air with tobacco smoke in it 4 times in an hour.*
- ◆ The ACH rating tells you how many times the device can exchange the air within a room with clean, fresh air every hour.

**If the purifier has an ACH rating of 6 for a 20' x 20' room, then it is capable of exchanging all of the air in that room 6 times every hour. If you have allergies or asthma, you want an ACH rating of at least 4, and preferably 6 or 8.**

- ◆ You can move your air purifier from room to room during the day, but you should try to create a clean bedroom environment at night, as this is where individuals spend many consecutive hours sleeping.
- ◆ The maximum coverage area requires running the unit at the highest possible speed.

## Questions to Consider with Filter Maintenance & Replacements

- ◆ Can the filter be cleaned with occasional washing or vacuuming or does the HEPA filter need to be replaced?
- ◆ What is the annual cost of replacement filters and how often do they need replacing?  
*Some units use a pre-filter to capture large airborne particles before they reach the HEPA filter. Typically, carbon pre-filters need to be replaced every 3 months and the HEPA filter yearly. Some carbon filters and HEPA filters may be washable. Please see model instructions on how to clean filters.*
- ◆ How do I know if the filter needs to be replaced?  
*Some units have change filter indicator lights, while other must be checked manually. For best use, follow the instructions provided for the particular model.*



### Energy Usage

- ◆ How much energy does a filtration unit use?  
*Like all appliances, different filters use different amounts of energy. Unlike most appliances though, air filtration units run, or should run, continuously. Typical air filters can use anywhere from 30 watts on low to 250 watts on high per hour.*
- ◆ To save money on energy costs, choose units with the U.S. Department of Energy's Energy Star rating.



### Noise Level

- ◆ How noisy are air filters?  
*It can be a balancing act when it comes to noise, but in general, there are appropriate fan settings with comfortable noise levels on all air purifiers.*
- ◆ Remember, for an air filter to be functioning at full capacity it must be running on its highest setting.  
*If possible, ask for a demonstration before you buy an air filter and test all the fan settings.*

### Air Pollution

- ◆ Avoid "ozone air purifiers" and "ionic air purifiers" as these are not effective at removing fine particulates.
- ◆ Ozone is an irritant that can irritate your eyes, lungs, and skin. It is especially dangerous for people with respiratory conditions.



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## Frequently Asked Questions

Where in the home should I place my HEPA air purifier?

Place HEPA air purifiers in the bedroom, as this is where individuals spend many consecutive hours sleeping. If you have more than one purifier, place additional purifiers in rooms where the most sensitive individuals spend the majority of their time.

Make sure the square footage listed for the capacity of the air purifier is about the same or slightly greater than the square footage of the room where you intend to use it.

How often does an air purifier need to run?

For the best air cleaning results, it's advised to operate your air purifier continuously throughout the day.

Is it better to leave the windows open or closed when using an air purifier?

An air purifier needs a tightly sealed room in order to operate at maximum efficiency. Therefore, you need to keep the windows closed. If a window is left open, then the air inside the room can never be totally clean because the flow of exterior pollutants coming indoors never stops.

What is the cost of a HEPA air purifier?

HEPA air purifiers range from \$50-\$1,000 depending on the quality and size of the unit. Initial cost isn't the only expense related to operating an air purifier. Also consider how much replacement filters will cost annually. Most use little electricity and some are Energy Star rated.

What air purifier removes smoke?

An air purifier with a True HEPA filter removes visible smoke, while an air purifier with an activated carbon filter gets rid of smoke odors. It's best to get a device that includes both of these filters if you want to clear up smoke from tobacco, cooking, or fires.

What brand air purifier is the best?

There are several air purifier brands that are considered the best in the industry. These include, but are not limited to: Rabbit Air, Winix, Hamilton Beach, O-ION, Airmega, Germ Guardian, Medify Air, Honeywell, Best Choice Products, Airfree, and Envion. The Montana Department of Public Health does not endorse any individual private company.

How do I know if I need an air purifier?

The U.S. Environmental Protection Agency (EPA) studies of human exposure to air pollutants indicate that indoor levels of pollutants may be 2-5 times — and occasionally more than 100 times — higher than outdoor levels, regardless of whether the homes were located in rural or highly industrial areas. An air purifier filters out air pollution and replaces it with clean air for you to breathe, which helps improve your overall health.

If you have chronic lung or heart conditions you may experience greater benefit from having a HEPA air filtration unit in your home, school or workplace.

How much maintenance and upkeep is needed for my air purifier?

If you're using an air purifier with a filter, replace the filters based on the manufacturer's recommendations.

Depending on how many filters your unit uses, you might need to change them at different times.

For example, your air purifier's HEPA filter might last one year, while the activated carbon filter lasts 6 months, and the pre-filter (if equipped) lasts 3 months. The typical filter life of all included filters is usually listed in the product specifications.



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