



All About Air Purifiers

For Patients

Learn how to seal indoor air and make or buy air cleaners before you experience wildfire smoke or poor outdoor air quality.

If a home has a forced air system (i.e., air gets blown into rooms through vents like an HVAC), it may have air filters. These should be changed regularly and be MERV 13 or higher. HVAC systems only filter air when they are on and can clean the whole house.

Portable air cleaners, however, are designed for use in individual rooms. **Air cleaners**, also known as air purifiers or sanitizers, typically come with either a MERV (minimum efficiency reporting value) rating or are HEPA certified. Ideally, people will have an air cleaner with a MERV rating of at least 13, which should remove at least 60% of particulate matter 2.5 microns in diameter or smaller. HEPA filters should remove even more.

To make an affordable and effective **indoor air cleaner**, you can use a box fan and air filters bought from a hardware store or ordered online. Follow the instructions below.

What you'll need:



Box fan



20"x20"x1" furnace filter
(MERV 13 or FPR 10)



Optional: Duct tape or bungee
cords



- 1** Place filter on back (air intake side) of fan.



! Make sure that the arrow on the side of the filter is pointing towards the fan.

- 2** Use the duct tape or bungee cords to attach the filter securely to the fan.



! Use tape or cords only around the edges; do **not** block the air flow through the fan.

- 3** Place in an area away from any obstacles and turn the fan on.

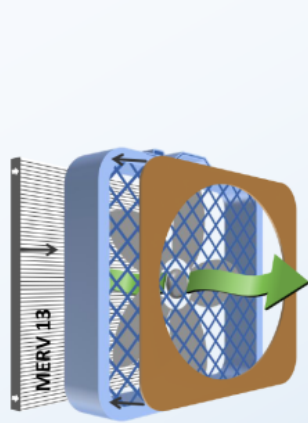


! Run the fan on high for a few hours if your indoor air quality is already poor, then turn it to medium to keep it clean.

Image from University of Washington EDGE Center

You can create an improved air filtration device (called a Corsi-Rosenthal Box) using five filter squares and a box fan. Directions on how to do so can be found at <https://www.epa.gov/air-research/research-diy-air-cleaners-reduce-wildfire-smoke-indoors>

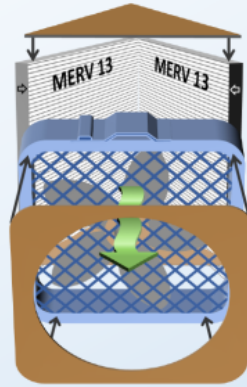
DIY Air Cleaner Designs: Beyond the Basic



Good

Basic Supplies:

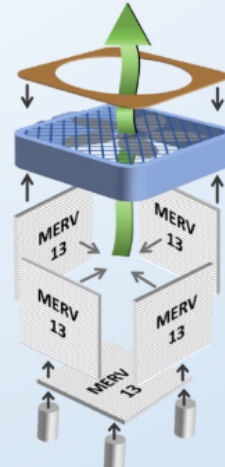
- 20" x 20" box fan
- 20" x 20" x 1" or 4" MERV 13 air filter
- 20" x 20" cardboard shroud
(cutout the size of the fan blades)
- Clamps, duct tape, or bungee cords



Better

Additional Supplies:

- Two - MERV 13 air filters
- Triangle cardboard cutout for base on top



Best

Additional Supplies:

- Four or five - MERV 13 air filters
- If using five filter design, use leg supports (e.g., blocks) to allow airflow through bottom

Ways to Improve Effectiveness:

- Add a cardboard shroud (no-cost improvement)
- Use thicker filters (4" rather than 1" MERV 13 filters)
- Use multiple filters (2-5 filter designs)

Key Reminders:

- Only use certified fans with UL or ETL marking (2012 model or newer)
- Keep extra filters on hand
- Replace filters when dirty

If you keep your windows and doors closed and use an indoor air filter, you can **create a clean room in your home**. To learn more about clean rooms that protect you from wildfire smoke and how to make one, visit bit.ly/create_clean_room. Ideally the filter should be MERV 13 or greater.

Notes: