



## FACT SHEET

### Do It Yourself (DIY) air filter

As fire season approaches, it's good to know how to protect yourself from wildfire smoke. People with heart or lung conditions, infants and young children, those over 65 years, and pregnant women are more sensitive to effects of smoke. Here are simple steps you can take if someone sensitive to smoke lives in your home.

Indoor air cleaners filter smoke particles out of the air. There are many [particle filters available on the market](#). To know which filters would do a good job, use the US Environmental Protection Agency's [Guide to Air Cleaners in the Home](#) or the [California Air Resources Board guide](#) to air cleaning devices.

Another option is to make a filter at home. You can do this by attaching a furnace filter on a box fan so that the fan surface is completely covered by the filter.\* One example would be a 20-inch x 20-inch box fan with a 20-inch x 20-inch furnace filter attached to it. Here are important tips for proper filtration and safety:

1. For good filtration, you need a furnace filter that is HEPA or rated MERV-13 or higher. These filters remove more particles from the air than lower rated ones. Filters with lower ratings offer inadequate protection from smoke.
2. Filters 3 inches to 5 inches thick will last longer than thinner ones. They have more surface area and will trap more particles with time. Change the filter as the manufacturer recommends or when visibly dirty.
3. A filter can put strain on the fan motor and could cause the motor to overheat or catch fire. Therefore, it is very important to turn the fan off if you leave the house. To limit possible hazards, you should:
  - a. Turn off and unplug the fan and contact the retailer or manufacturer if you notice a burning smell or unusual noises. Do not continue using the fan with or without the filter.
  - b. Think about replacing the fan every several years as older motors can overheat.
  - c. Make sure to change filters as the manufacture recommends or when visibly dirty to limit strain on the fan motor.
  - d. Do not balance the fan on the edge of the counter, or anywhere that it could fall off.
  - e. Prevent children and pets from chewing on or pulling the fan cable.
  - f. Always unplug the fan from the socket when not in use.
  - g. Ensure that you have functional fire and smoke alarms installed in your home. The [National Fire Protection Association](#) provides recommendations on where to place fire and smoke alarms.

You can attach the filter firmly to the fan using tape, a bungee cord, or another method. Make sure to attach the filter so that the arrow on the filter points in the direction of the air generated by the fan.

The Confederated Tribes of the Colville Reservation Air Quality Program attached two filters to the fan in a triangular manner. It reduced the load on the fan motor. You might consider this setup as well. <https://www.cct-enr.com/box-fan-filter>.

For more information on DIY filter efficacy, see the Puget Sound Clean Air Agency webpage on the topic: <https://pscleanair.gov/525/DIY-Air-Filter>.

Filters also can reduce dust and other sources of smoke in your house. Cleaner air helps protect people with underlying lung and heart conditions, but it's also good for everyone!

\* Do so at your own risk. The Oregon Health Authority and the State of Oregon are not liable or responsible for any damage or loss from making an air filter at home or for your use of the above information.

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