

Portable Air Cleaners: Selection, Placement, and Upkeep

Portable air cleaners reduce respiratory disease transmission by removing airborne viruses and bacteria from indoor air. These devices use high-efficiency filters (like HEPA) or air purification technologies to capture or neutralize harmful particles, including those exhaled by infected individuals. Typically HEPA filters are considered the gold standard compared to other technologies, because their effectiveness is well-established and verified by decades of testing.

Since respiratory diseases, like COVID-19 and the flu, often spread through tiny droplets that linger in the air, cleaner air means fewer infectious particles to inhale. This lowers the risk of transmission, especially in enclosed spaces with limited ventilation.

Portable air cleaners act as an extra layer of protection, complementing measures like masks and ventilation to create a healthier indoor environment.

A step by step guide to selecting a portable air cleaner:

1. Determine the size of the room in which the air cleaner will be placed. Measure the room's floor area (length × width) and ceiling height.
2. Use a [Portable Air Cleaner Sizing Tool](#) to determine how many cubic feet per minute (CFM) of air needs to be passed through the air cleaner.
3. Using the Clean Air Delivery Rate needed—provided by the above sizing tool, to select a [Certified Portable Air Cleaner](#).

Other portable air cleaner selection considerations:

1. In order to be effective, the air cleaner must meet the needs of the size of the room, which can be accomplished by following steps 2 and 3 above.
2. It should be fitted with a HEPA filter (high-efficiency particulate air filter).
3. For energy conservation, consider purchasing a unit that is marked ENERGY STAR. These are labeled clearly on the certified portable air cleaner website above.
4. If the unit will be relocated or adjusted often, consider an air cleaner that has wheels.
5. For ease of use, consider a unit that has only basic functions of an air cleaner such as an “on and off” switch and “low, medium, high” functions.

6. Stay away from portable air cleaners that indicate the use of ionizers or those that generate ozone.
7. Higher price does not indicate higher performance of a portable air cleaner.
8. Be wary of new and expensive technologies that have not been appropriately researched.
9. [DIY Portable Air Cleaners](#) can be created for temporary use at low cost.

Portable air cleaner placement and upkeep:

1. Place the air cleaner where air can circulate around the entire unit—this means it should not be directly against a wall or have any items placed on or directly around it. There are units that can be wall mounted if floor space or trip hazards are a concern.
2. Ensure the outside of the unit is free from debris that collects over time such as pet hair or accumulated dust.
3. Replace the unit's air filters as often as recommended by the manufacturer, typically every six months to a year.
4. If someone in a shared area has a respiratory infection, prioritize air cleaner placement near the infected individual (source control) as opposed to near the non-infected individual, to reduce the amount of virus in the air.

Definitions:

Clean Air Delivery Rate (CADR): The most commonly used metric to characterize the effectiveness of air cleaners is the CADR. The CADR indicates volume of filtered air delivered by an air cleaner.

High-Efficiency Particulate Air (HEPA): These filters can theoretically remove at least 99.97% of dust, pollen, mold, bacteria, and any airborne particles with a size of 0.3 microns (μm).