

PORTABLE AIR CLEANER SELECTION, CARE AND MAINTENANCE



Air-purifying devices, such as a portable air cleaner, can be an effective supplement to building ventilation and can help [improve indoor air quality](#), especially when eliminating the source of air pollution is not feasible and/or increasing outdoor air ventilation is impractical or ineffective.

ABOUT AIR CLEANERS

Portable air cleaners, also known as air purifiers, can use the same technology as building ventilation systems to clean the air in a room or designated area. Most air cleaners are designed to remove airborne particles (such as bacteria, fungi, and viruses) or gases, but some also destroy, degrade, or transform contaminants that pass through them.

SELECTING AN AIR CLEANER

When selecting a portable air cleaner, keep in mind:

- No air cleaner will eliminate all of the air pollutants in your space.
- Filters are designed to either filter out particles or gases. Some air cleaners contain two filters, one for particles and another for gasses, including nuisance odors.
- Air cleaners do not replace the need to open windows for fresh air in naturally ventilated spaces.
- Air cleaners should be [UL listed](#) or equivalent for safety.
- Air cleaners must be **Energy-Star certified** to support the [UW Sustainability Action Plan](#) goal of 15% lower energy usage intensity by 2025.



Typical portable air cleaner

Follow these steps to ensure the selection of the optimal portable air cleaner for your space:

1. **Ensure the portable air cleaner is sized correctly to the room area.** To measure the square footage of the room, multiply the length by the width (in feet) or find the room area in [UW Space Viewer](#); contact EH&S if assistance is needed.
2. **Ensure the clean air delivery rate (CADR) of the portable air cleaner will be effective for the size of the room.** The higher the CADR, the larger area it can serve. Refer to the table on page 2 for the recommend minimum CADR per room size. The table assumes 8-foot ceilings, so if you have taller ceilings you will need to have a larger CADR rating.
3. **Ensure the air cleaner has proper filters.** It's important to ensure the portable air cleaner is equipped with a high efficiency particulate air (HEPA) filter to effectively filter out small particles, like those found in wildfire smoke. Many units have prefilters which help preserve the more expensive HEPA filters. Prefilters should be changed more frequently.
4. **Consider cost:** Smaller units can cost as low as \$50 and larger units can cost \$500 or more. Replacement filters are an added maintenance cost to consider.
5. **Consider noise levels:** EH&S recommends purchasing a portable air cleaner that produces sound at a decibel level (dB) under 50 because higher sound levels may interfere with the ability to concentrate or cause annoyance. Larger units are typically louder.
6. **Consider physical size of the unit:** Consider the dimensions of the unit and have a plan for placement in the office. The ideal placement of portable air cleaners is the middle of the room which ensures there is a few feet of clearance around the unit's air intake.

OTHER CONSIDERATIONS

- **Avoid portable air cleaners that produce ozone.** Ozone is a lung irritant. In some cases, air cleaners that contain electrostatic precipitators, ionizers, UV lights, or plasma air cleaners may have the potential to emit ozone; University units should avoid purchasing an air cleaner with these features.
- **Portable air cleaners do not address the cause of mold and musty odors.** Mold is caused by a water or moisture problem in the building that allows the mold to grow. Contact [UW Facilities](#) to have this problem evaluated.
- **Portable air cleaners do not address thermal comfort issues** related to heating or cooling capacities of HVAC systems. Air cleaners are not designed to cool spaces and may produce heat that worsen comfort issues in spaces where mechanical cooling is not installed.
- **Personal air purifiers**, such as small units worn around the neck (see below), work by emitting electrically charged molecules or atoms called ions. **There is little evidence to suggest that a wearable personal air purifier will make a noticeable improvement in air quality** in your workspace. Additionally, these devices may produce ozone, which should be avoided.



Source: www.hammacher.com

CARE AND MAINTENANCE

All filters need regular replacement as specified by the manufacturer in the product user manual. If a filter is dirty and overloaded, it won't work well. With proper care and upkeep, the portable air cleaner will continue to function properly and filter the air. Consider purchasing replacement filters when purchasing the air cleaner.

When changing portable air cleaner filters, wear a face covering, and without shaking or disturbing dust on the old filter, place it directly in a plastic garbage bag and seal tightly for disposal.

To safely power the portable air cleaner it should be plugged into a wall outlet, not a power strip, since these appliances have a higher power capacity. If purchasing multiple units, check with your building coordinator to verify electrical capacity.

RESOURCES

The following resources from the Environmental Protection Agency provide useful information on portable air cleaners:

- [Mold information](#)
- [Guide to Air Cleaners in the Home](#)
- [Indoor Particulate Matter](#)
- [AirNow Air Quality Index](#)

Portable Air Cleaner Sizing for Particle Removal

Room area (square feet)	100	200	300	400	500	600
Minimum CADR (cfm)	65	130	195	260	325	390

Note this chart is for estimation purposes. The CADRs are calculated based on an 8-foot ceiling. If you have higher ceilings, you may want to select a portable air cleaner with a higher CADR.

Estimated recommended CADR rating for selecting a portable air cleaner.

Source: [EPA Guide to Air Cleaners in the Home](#)

Contact the EH&S Indoor Air Quality team at 206.543.7388 or ehsdept@uw.edu for more information.