

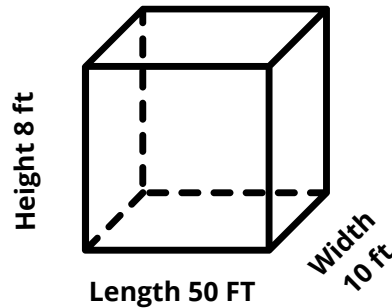
DOES YOUR CHILD CARE PROGRAM HAVE GOOD VENTILATION?

- **Portable Air Cleaners (PACs)** can be used to supplement natural ventilation and heating, ventilation, and air conditioning (HVAC) systems in certain cases, e.g. when HVAC systems do not adequately ventilate or filter the air or windows cannot be opened safely.
- PACs remove harmful particles and viruses in the air and are recommended to remove respiratory droplets that carry germs (e.g. COVID-19).
- Products such as salt lamps, air fresheners, incense, and candles add chemicals to the air and do not filter the air nor improve air quality.



WHAT TYPE OF PORTABLE AIR CLEANER SHOULD YOU BUY?

In order to pick the right PAC, calculate the square footage and volume of the room.



- To calculate the square footage of a room multiply the length by the width of the room.
 $50 \text{ ft} \times 10 \text{ ft} = 500 \text{ square feet}$



- To calculate the volume multiply the Length x Width x Height.
 $50 \text{ ft} \times 10 \text{ ft} \times 8 \text{ ft} = 4000 \text{ cubic feet}$

Which PAC Should You Choose?

- Choose a PAC that: has a high-efficiency particulate air (HEPA) filter; has a high Clean Air Delivery Rating (CADR); or the manufacture states that the device will remove most particles below 1 micrometer or μm . Room size matters--make sure you have a CADR rating suitable for the space.
- Do not use air cleaners that produce ozone such as ionizers.
- California is the only state that regulates PACs and they have a [list of certified devices](#).
- The CADR is provided for each product. This will be listed on the packaging label or under the product details/specifications. Some products list 3 CADR ratings: smoke, dust, and pollen.
- Choose the highest CADR rating that is listed on the package. Use this to calculate air changes per hour (ACH) or how many times the air circulates in the room per hour.

IS THE PORTABLE AIR CLEANER APPROPRIATE FOR THE ROOM SIZE?

- The indoor air is measured by ACH, which is the number of times the air filters 100% in a room per hour. The recommended range for ACH is 3-6.
- Prior to purchasing the portable air cleaner use the formula below or the [Harvard CU-Boulder Air Cleaner calculator](#) to determine if the portable air cleaner is appropriate for the room size.

$$\text{ACH} = \frac{\text{CADR} \times 60 \text{ minutes}}{\text{Room Volume}}$$

Calculation for the ACH for a 500 sqft room with a 8 ft ceiling

$$\text{ACH} = \frac{342 \text{ CADR} \times 60 \text{ minutes}}{4000}$$

ACH = 5.13 Meets Recommended Goal

Calculation for the ACH for a 500 sqft room with a 10 ft ceiling

$$\text{ACH} = \frac{342 \text{ CADR} \times 60 \text{ minutes}}{5000}$$

ACH = 4.10 Does not meet recommended goal

- To access the Harvard CU-Boulder Air Cleaner calculator, go to https://docs.google.com/spreadsheets/d/1NEhk1IEdbEi_b3wa6gl_zNs8uBJjISS-86d4b7bW098/edit#gid=1882881703 and download the file into excel.
- Note that larger rooms or rooms with a ceiling higher than 8ft may require multiple units.

WHERE SHOULD I PLACE MY PORTABLE AIR CLEANER? AND HOW DO I MAINTAIN IT?

Where Should You Place the Portable Air Cleaner?

- The portable air cleaner should be placed so that the purified air reaches occupant breathing zone and prevents airflow from crossing occupants.
- It is advised to place the portable air cleaner toward the center of the room where occupants sit/stand.

**It is recommended to operate the portable air cleaner while the room is occupied and 1-2 hours afterwards.*

Which Safety and Maintenance Measures Should You Consider?

- Keep the portable air cleaner away from curtains or anything that will block airflow.
- Keep the electrical cord inaccessible to children.
- Follow the manufacturer's recommendations for changing the HEPA filter. Some air cleaners require changing the HEPA filter every 6 to 12 months. The cost of filters range between \$20 to \$200 depending on the unit.
- Always wear gloves and a mask when changing the filter. Place the used filter in a plastic bag, tape the bag and then dispose of it. Wash your hands with soap and water after disposal.

Disclosure: This will help improve air ventilation and reduce the risk of transmission of COVID-19; using a portable air cleaner should not be the only method of prevention. It is recommended to continue following COVID-19 risk reduction guidelines: wear a mask, physical distance, get vaccinated, avoid crowds and poorly ventilated indoor spaces and wash hands often. For more information on COVID-19 guidelines, please visit <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>.

Resources

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4. San Francisco Department of Public Health. (2020). Novel Coronavirus (COVID-19) Information for Businesses, Employers, and Employees. Disease Prevention and Control, San Francisco Department of Public Health. <https://www.sfcdcp.org/infectious-diseases-a-to-z/coronavirus-2019-novel-coronavirus/coronavirus-2019-businesses/#1599938757193-9b58ac12-8b50>
5. US EPA. (2019). What is a HEPA filter? US EPA. <https://www.epa.gov/indoor-air-quality-iaq/what-hepa-filter-1>
6. US EPA. (2020). Air Cleaners, HVAC Filters, and Coronavirus (COVID-19). US EPA. <https://www.epa.gov/coronavirus/air-cleaners-hvac-filters-and-coronavirus-covid-19>
7. Zhao, B., Liu, Y., & Chen, C. (2020). Air purifiers: A supplementary measure to remove airborne SARS-CoV-2. Building and Environment, 177, 106918. <https://doi.org/10.1016/j.buildenv.2020.106918>

