



Information for School Districts on Purchase of Filtration and Air Cleaning Devices

Improving filtration in heating, ventilation, and air-conditioning (HVAC) systems (i.e., in-duct units) and installing portable air cleaners in classrooms are among the recommended measures to safely reopen schools. These additions should not be full replacements for outdoor ventilation (i.e., HVAC delivery of minimum, code-required outdoor air), but they can help remove virus-containing particles and thus reduce airborne transmission of SARS-CoV-2. Other currently available devices use a variety of technologies, not all of which are safe or proven to be effective. School districts are facing the challenges of how to make appropriate purchasing decisions.

Technologies to avoid

It is recommended to avoid ozone-based devices. The [California Air Resources Board](#) (CARB) regulates ozone emissions from air cleaners and strongly advises against using ozone-based devices in occupied spaces.¹

Technologies without standard test methods of performance effectiveness against airborne infectious particles

Devices based on ultraviolet (UV) radiation, UV photocatalytic oxidation (UV-PCO), or ionization (e.g., bipolar ionization, negative ionization, or plasma) are marketed as safe and effective for indoor use. However, no independent group has developed standardized methods to measure how well such air cleaners remove or inactivate SARS-CoV-2 or surrogate bioaerosols under real world conditions. Additionally, some technologies may produce harmful byproducts, e.g., UV-PCO technologies potentially can generate formaldehyde. A [CARB certificate](#) only indicates that an air cleaner does not emit a harmful amount of ozone, not that the device generates no other harmful by-products nor that it will effectively rid the air of SARS-CoV-2.

Better choices

Air cleaners with high-efficiency, pleated filters are good choices, and authorities recommend their use. They have been evaluated using established, standard test methods and product rating systems for removing particles,^{2,3} such as those containing infectious agents and wildfire smoke. The [CDPH interim ventilation guidance](#) recommends:⁴

- HVAC duct filters with a minimum efficiency reporting value (MERV) rating of 13 or higher.
- Portable air cleaners with high-efficiency particulate air (HEPA) filters and sufficient clean air delivery rate (CADR) based on room size (e.g., a CADR for smoke at least 2/3 of the floor area).

1. CARB. [Hazardous Ozone-Generating Air Purifiers](#).
2. ANSI/AHAM. Method for Measuring Performance of Portable Household Electric Room Air Cleaners. In. Washington, DC: Association of Home Appliance Manufacturers (AHAM); 2015.
3. ASHRAE. Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size. In. *ANSI/ASHRAE Addendum b to ANSI/ASHRAE Standard 52.2-2007*. Atlanta, GA: American Society of Heating, Refrigerating, and Air-Conditioning Engineers; 2008.
4. CDPH/OSHPD/Cal-OSHA. [Interim Guidance for Ventilation, Filtration, and Air Quality in Indoor Environments](#). 2021.