STATE OF NEW MEXICO
PUBLIC EDUCATION DEPARTMENT
300 DON GASPAR
SANTA FE, NEW MEXICO 87501-2786
Telephone (505) 827-5800
www.ped.state.nm.us

RYAN STEWART, ED.L.D.
SECRETARY OF EDUCATION

MICHELLE LUJAN GRISHAM
GOVERNOR

October 15, 2020

MEMORANDUM

TO: Superintendents, Charter Leaders, School Board Members
FROM: Ryan Stewart, Cabinet Secretary, Public Education Department
RE: **Air Filtration Supplements**

Dear Superintendents, Charter Leaders, and School Board Members,

Overview

The variety and complexity of HVAC systems in large buildings requires professional interpretation of technical guidelines, such as those provided by leading professional and medical organizations. The EPA, ASHRAE and CDC recommend upgrading air filters to the highest standard compatible with the system and checking the filter fit to minimize filter air bypass. Other strategies may be used to meet air quality standards when systems are incompatible with MERV 13 or higher filtration.

PED Requirements

The Public Education Department is adhering to the ASHRAE guidelines, requiring schools to upgrade filters to a MERV 13 rating or the highest MERV rating determined to be compatible with existing HVAC systems. Additionally, districts and schools unable to immediately install MERV 13 or its equivalent must work with their operations staff to take the following actions in accordance with the guidelines from the CDC:

1. Run the central air fan continuously if clean air can be introduced;
2. Open dampers to increase air flow and maximize clean air introduction;
3. Open windows and doors (be mindful of possible safety considerations); and
4. Deploy box fans or other portable fans and air purifiers with high air circulation capacity in addition to prioritizing the use of these items in classrooms with higher ventilation needs.

Any of the augmentation steps must take into account the air pathway when being implemented. If 100% clean air is introduced and 100% of that air is not recirculated to others, then no filter would be needed. This is obviously difficult to do. If 100% of the introduced air is recirculated through a MERV 13 or higher filter and doesn't pass through any other potentially contaminating environments, then no augmentation would be required. In situations where the air pathway may need to pass from one

occupied environment to another without first going through a MERV 13 or higher filter, then additional steps must be taken. They should include at a minimum: augmented airflow from a clean source, to help dilute potentially contaminated air, or in-room HEPA filtration.

HEPA Filters

According to ASHRAE, true HEPA filters are at least 99.97% efficient at filtering 0.3 µm mass median diameter (MMD) particles in standard tests. HEPA filter efficiency is better than MERV 16. HEPA filters can be placed in HVAC systems, but they may not be an appropriate option for some HVAC systems due to high pressure drops and the likelihood that systems will need new filter racks to allow sufficient sealing to prevent filter bypass. To function properly, HEPA filters must be sealed properly in filter racks. Filters are often delicate and require careful handling to prevent damage and preserve performance.

In addition to HVAC systems, HEPA filters can be placed in in-room or portable HEPA machines. When used with a portable or in-room HEPA machine appropriately rated to provide effective filtration in the designated room, HEPA filters can be used in lieu of MERV 13 filters. Sound levels and electrical demands should also be considered when purchasing these units - sometimes multiple small machines are more effective than a single large unit.

Guidance from the Harvard's School for Public Health and Colorado State University's College of Engineering and Applied Science for selecting a portable HEPA filter unit can be found at: https://tinyurl.com/portableaircleanertool. Ratings for individual HEPA filter units that have been certified by the Association of Home Appliance Manufacturers can be found at: https://www.ahamdir.com/room-air-cleaners/.

Supplemental Air Cleaning Systems

LEAs may also consider using portable air cleaners to supplement increased HVAC system ventilation and filtration. Other air cleaning procedures (such as air ionization, dry hydrogen peroxide, and ultraviolet filtration systems) may be useful when used along with adequate ventilation and source control, i.e., limiting occupancy, wearing masks, and enhanced hygiene protocols, but they are not a substitute for upgrading system filters or using portable HEPA filters. With regard to meeting PED requirements, these systems should be considered supplementary and optional.

Schools that are unable to install MERV 13 filters and that choose to use one of these systems are required to take the airflow augmentation measures outlined in the PED requirements section above. The use of air cleaners alone cannot ensure adequate air quality, particularly where significant pollutant sources are present and ventilation is insufficient. See ASHRAE and CDC for more information on air cleaning and filtration and other important engineering controls. https://www.ashrae.org/file%20library/technical%20resources/covid-19/ashrae-filtration_disinfection-c19-guidance.pdf

Maintaining Air Quality in the Winter Months

During the winter months, schools should continue to augment airflow by using central air fans and box fans. Dampers should also be kept open to introduce fresh air into the HVAC system. For many schools, it will become more difficult to introduce outside air through open windows due to colder temperatures. However, for schools unable to upgrade filters to the MERV 13 level, the combination of maximally upgraded filters, increased airflow through the use of fans, and the introduction of fresh air through the opening of dampers will help schools maintain a high quality indoor air environment.

In addition, schools may work with their HVAC technicians to take measures to direct the airflow in classrooms and other spaces so that air does not blow directly from one person to another, and so that airflow moves in a "clean to dirty" direction. These actions can help further reduce the potential spread

of droplets that may contain infectious viruses. Portable HEPA filters may be required to achieve adequate air quality (see diagrams below). More information on air quality strategies is available in *Reducing the Risk of COVID-19 Using Engineering Controls*, a free publication from the American Industrial Hygiene Association (AIHA), which can be downloaded at: https://www.aiha.org/public-resources/consumer-resources/coronavirus_outbreak_resources/aiha-covid-19-pandemic-efforts/free-covid-19-public-resources

Outdoor Education

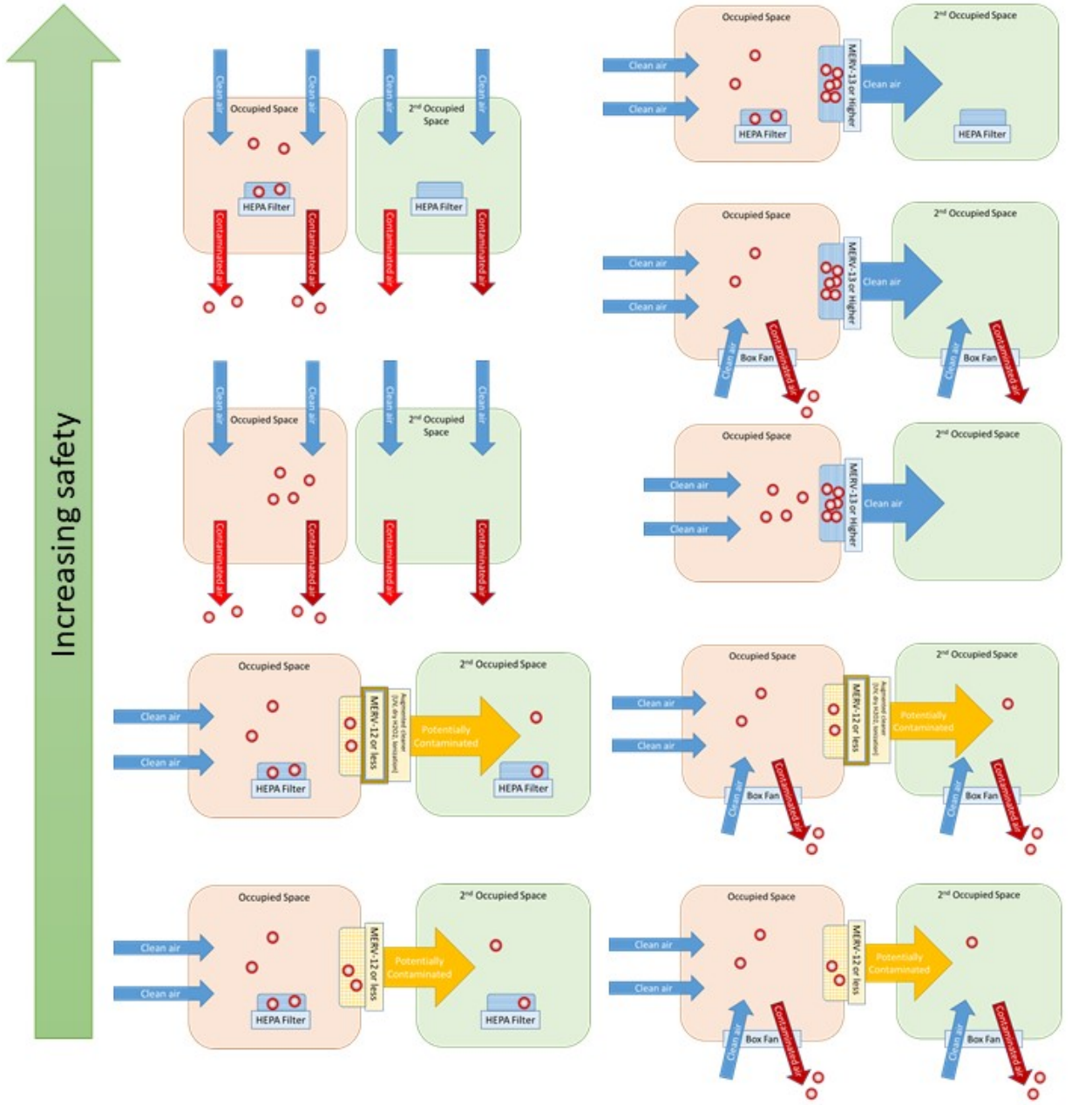
PED encourages all schools to utilize outdoor spaces for learning to the greatest extent practical. The CDC recommends that schools consider moving classrooms outside if the conditions are safe and conducive to a learning environment (must consider weather conditions, pollution, wildlife, etc...).

Air Quality Diagrams

Below are diagrams that represent acceptable and unacceptable air quality conditions in classrooms occupied by students and staff during hybrid or full reentry. The diagrams represent systems with increasing safety from the bottom of the page to the top of the page, with unacceptable systems below the red line.

These diagrams are based on a potentially infected individual present in one of the occupied spaces. As indicated in the diagrams, air introduced to a classroom must always come from a clean air source. A clean air source can be: 1) outdoor air; 2) air from an unoccupied space; 3) air from an occupied space that has been passed through a MERV 13 or higher filter; or 4) air from an occupied space that has been subjected to an adequately sized portable HEPA filtration unit in the source room. A hallway can serve as a source of clean air if outdoor air is being introduced into the hallway or if its air is being filtered by MERV 13 or HEPA filtration.

If air circulated between occupied spaces is not filtered with MERV 13 filters, treating it with Ultraviolet (UV), Dry Hydrogen Peroxide (DHP), or Air Ionization systems may improve air quality; however, this condition must be augmented by forcing clean air into the occupied space using box fans or the air in the room must be filtered with a portable HEPA filter unit. Sharing of air between occupied spaces most often happens through HVAC systems as they circulate air through discharge registers and return air vents. If an HVAC system in a building is circulating air between classrooms and is not operating with MERV 13 or higher filters then clean air must be introduced directly into the classroom from windows, clean air must be introduced from hallways using box fans, or a portable HEPA filter unit should be operated in each classroom served by that HVAC system. It is important to remember that maximized air quality includes implementing as many of these strategies as practical, even beyond meeting minimum conditions.


Increasing safety
Occupied Space
2nd Occupied Space
Clean air
Contaminated air
HEPA Filter
MERV-13 or Higher
Box Fan
MERV-12 or less
Potentially Contaminated
Unacceptable below this line