

Providing students and staff with a healthy indoor environment is an important component to any plan related to the reopening of schools. As outlined in the PCS ReOpening Plan and the Cleaning for a Healthier Pinellas County Schools, the district has developed and is implementing many proactive health and wellness procedures to support the safety and wellbeing of students and employees. Individual and schoolwide strategies such as social distancing, personal hygiene such as handwashing, personal protective equipment and cleaning/disinfection practices help promote a healthy environment. These strategies have demonstrated effectiveness in lessening the spread of COVID-19 whether in a public location, like school buildings, or in our homes. Recently, there has also been much discussion about ventilation systems within school buildings as a part of a layered defense against COVID-19.

Pinellas County Schools (PCS) applies standards as defined by ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers) for the ventilation and filtration of school spaces and has long-designed and maintained HVAC systems that meet or exceed the ASHRAE standards. The district employs three types of cooling systems: 1) chilled water systems, 2) direct Exchange (DX) units – known as a ‘BARD’ unit and 3) vertical Fan Coil systems. The vast majority of schools across the district are conditioned via a chilled water system. Unlike most home air conditioning systems, which just recirculate cooled air, an important piece of a chilled water system is the inclusion of a fresh air exchange in which the system is constantly bringing in fresh outside air that has been cooled while pushing out air that has already been in the room. In general, this allows for a complete fresh air exchange in a normal sized classroom every 30 minutes.

In June 2020, the Harvard T.H. Chan School of Public Health issued a *Schools for Health* report that included recommendations for creating healthy school environments for school reopening and included recommendations for ventilation and filtration of air for schools with HVAC systems and for schools without such systems. The report also references ASHRAE Epidemic Task Force, the governing body that Pinellas County Schools has based our standards for ventilation. Below are the recommendations from the Harvard *Schools for Health* report along with Pinellas County Schools’ current HVAC practices and a description of how the district is moving forward to continue to provide for the proper ventilation and filtration of air in our school spaces.

Harvard <i>Schools for Health</i> Report Recommendations	Pinellas County Schools Status and Next Steps
Schools with HVAC systems should open system dampers to increase fresh air exchange. Schools without HVAC systems should open windows to increase outdoor air ventilation	The district meets this recommendation as HVAC systems supply constant fresh air exchange within its chilled water and vertical fan coil system.
Schools should upgrade their filters to MERV 13 equivalent or higher	Currently all schools and buildings have the equivalent of a MERV 13 filter by installing Dual 9/9A filters in sequence with a MERV 8 or MERV 11 filter. When the equivalent of a MERV 13 filter cannot be used due to concerns with system cooling performance, portable air scrubbers using HEPA filtering will be installed.
Schools without HVAC systems should supplement the open window ventilation with portable air cleaners (commonly called “air scrubbers”)	All schools have HVAC systems and there are no non-air-conditioned indoor classrooms in the district.
Schools should verify and measure HVAC performance	Through our building monitoring system (BMS) and our partnership with Cenergistic, all schools and district buildings constantly monitor temperature, humidity, and air flow in each classroom.
Schools should consider advanced air quality techniques	In addition to the partnership with Cenergistic, the district is reviewing the developing research on advanced air quality techniques and their effectiveness against the spread of COVID-19.

In addition to the five recommendations included in the Harvard *Schools for Health* report above, the district currently:

- Runs dehumidification cycles throughout times when the air conditioning is shut down;

- Operates the HVAC system whenever buildings are occupied; and
- Schedules nightly cleaning of spaces using a zoned approach that matches the HVAC zones at each school. This allows for crews to work in a cooled environment and will also allow for one complete fresh air exchange after the crews leave a zone.

Pinellas County Schools has also placed further emphasis on the importance of nightly cleaning by zones as outlined in *Cleaning for a Healthier Pinellas County Schools*. It is important to note that there is little chance that the virus could manifest itself in a room once the room has been disinfected and locked and that a minimum of one fresh air exchange be completed before the system is shut down for the night or weekend. Employing this approach and running the appropriate dehumidification cycles means it is not necessary to run the cooling system over night. Equally important to note is the fact that all schools are scheduled to be at or near occupied temperatures when staff reports in the morning. To accomplish this, systems must be turned on and multiple fresh air exchange cycles run long before staff arrives each day.

The district is not providing individual room/classroom air purification devices. Because some models produce ozone and are not safe for classroom use, schools who wish to use these must have prior approval. All portable room air purifiers must be reviewed and approved by maintenance to ensure that the unit is safe and sized appropriately for the room. School administrators should supply the make and model information of any proposed portable air purifiers to their Head Plant Operator prior to purchase and installation.

For many Floridians, it is hard to imagine that many schools across the country do not have schoolwide air conditioning systems with some schools not having air conditioning at all within classrooms. This is important to note as the majority of recommendations and positions that have been raised related to ventilation in schools are written to advise schools across the nation, both in areas that rely on HVAC systems to provide a comfortable environment and in areas that can provide comfortable classrooms without the use of HVAC systems. Therefore, many national recommendations regarding ventilation in schools are written in general terms and include directives such as 'schools should increase ventilation and the flow of air' without taking into account that some school districts, like Pinellas County Schools, already have systems in place to exchange fresh air and provide for proper ventilation.