



Caledonia-Mumford Central School District Implements Air Purification Technology

CASE STUDY

Caledonia-Mumford
Central School District
Caledonia, NY

OVERVIEW

The 2017-2018 flu season was so severe that around the country, entire school districts shut down. In Arkansas, one district shuttered its 10 schools when absenteeism quadrupled to 20%. In a Florida district, absenteeism reached 25%, and one-third of its 150 teachers called in sick. The Chicago suburbs, Montana mountain towns, Alabama cities, rural New York — all experienced school closures during the record-setting flu season.

But in the Caledonia-Mumford Central School District, near Rochester, New York, classrooms were full and humming.

"The flu season went on forever. It started early and ended later than usual, yet our student and staff attendance was better than the previous year," recalls Bob Molisani, Caledonia-Mumford's superintendent.

"That was not common around here. Schools were closing due to sickness."

It's difficult to know why Caledonia-Mumford recorded stellar attendance during a dismal flu season, but Molisani points to one likely reason: the installation of WellAir air purification technology in all the district's buildings.



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BACKGROUND



Cleaning the air was actually the second step Caledonia-Mumford took in pursuit of improved attendance and health. The first order of business was upgrading the way surfaces were cleaned, sanitized, and disinfected. Desktops, doorknobs, faucet handles, toys, computer keyboards — every surface in reach of students and staff can spread infection in school.

“There’s a lot of touching that leads to a lot of sickness, especially at the elementary level,” Molisani notes. “So, we changed our cleaning materials, the microfiber fibers we used for floors and tables, even the soap dispensers in the bathrooms.”

The district also retrained its custodians and teachers on cleaning procedures, and the teachers, in turn, taught their students proper handwashing technique.

Once surface cleaning was tackled, Molisani says, “it was time to address the air.”

EVERYONE DESERVES CLEAN AIR

The district had plenty of incentive to improve, as New York, like in many states, ties education funding to average daily attendance. “We know that if students are in school, they will learn from our dynamic teachers,” Molisani says, “and we will get more state aid to make education more engaging and fun.”

For Caledonia-Mumford, installing the technology was a proactive move, rather than a reaction to attendance concerns. “We already had great attendance — 94% to 96% — but we wanted to be even higher,” Molisani says.

The district recognized that children, with developing lungs and narrow airways, are particularly vulnerable to the effects of contaminated air and that schools, even when cleaned to the highest standards, are reservoirs for airborne pathogens and pollutants.

“Everyone deserves clean air,” Molisani says.

Caledonia-Mumford purchased the WellAir technology only after performing its due diligence.

The district participated in a pilot study on indoor school air quality, conducted in five schools under the auspices of BOCES, a regional network that provides shared educational services to smaller New York school districts.

The results were striking: classrooms outfitted with WellAir purifiers recorded, on average, a 50% lower bacteria load than rooms without the purifiers — 471 CFU (colony forming units)/m³ compared to 930 CFU/m³. (Because testing viral load is difficult, bacteria results are generally considered a useful substitute.)

“The air in the test classrooms was so superior to the other classrooms that we got on board,” Molisani says.

AN ECOSYSTEM FOR HEALTHY INDOOR AIR

Deployed in hospitals and nursing homes to reduce the spread of infection, WellAir purifiers are now being used by forward-thinking schools to boost health and attendance.

In numerous studies, the technology has been shown to dramatically reduce airborne virus particles, such as those that spread influenza, as well as bacteria, fungi, dust, and volatile organic compounds (VOCs).

The technology was installed in the district's three schools, administration building, and bus garage.

"We have them in our gyms and auditoriums, cafeterias, band rooms, chorus rooms, art rooms – everywhere. It's an inexpensive investment that can truly pay dividends," Molisani says. "Now we're considering adding the devices on our school buses, where you have 30 to 50 kids in a confined space for 45 to 50 minutes per trip."

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While the WellAir system is designed to reduce pathogens that cause influenza, norovirus, stomach bugs, and the common cold, the same technology also reduces triggers for asthma and allergies, conditions responsible for high levels of student and teacher absenteeism nationwide. Asthma alone accounts for 14 million student absences annually in the United States, one third of all school days missed, and teachers and custodians report exceptionally high rates of work-related asthma cases.

Even well-ventilated schools can harbor dust mites, mold, VOCs, bus exhaust, and other irritants that cause sinus problems, congestion, watery eyes, headache, and nausea.

The prospect of removing these particles, as well as pollen, from the district's buildings was appealing to Molisani.

"We don't have air conditioning in our schools, so the windows are open, and there's a high pollen count," he says. "The purifiers turn over the air several times an hour, depending on the size of the room. They're constantly cleansing the air."

The purified air has particularly benefited a district staff member who is highly susceptible to sneezing fits, Molisani reports. "He'd sneeze constantly for a minute and a half and would have these attacks multiple times in the day. He'd always say, 'I'm sorry, I'm sorry.' Of course, it was nothing he did. We put a system in his office, and now he's down to one or two fits a week. It's been an amazing difference."

In addition, air quality in all the buildings is monitored 24/7 via the WellAir customer portal.

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The portal tracks indoor temperature and relative humidity, both critical to preventing growth of mold and bacteria, as well as VOC levels and outdoor air quality. Email and text alerts are automatically sent if readings fall outside the target range. For example, if the temperature runs more than one degree too high or low for more than one hour or if the humidity is more than 5% out of range for more than two hours.

Though the district can monitor the portal itself, it has chosen to pay BOCES to do it. "They contact us if something is up. They'll say, 'This classroom has been too hot on two consecutive days,' or 'The VOCs just spiked,' which is usually after a class party or a lab experiment."



"Molisani notes that for all the benefits of the WellAir system, there's no downside. Installation in the HVAC system was easy and the purifiers are out of sight and silent."

ADDITIONAL BENEFITS

For schools, the primary benefit of WellAir technology is, of course, removing pathogens that cause illness, but the system also offers a welcome side benefit: odor elimination.

In fact, the technology removes odors so effectively that it's commonly used in casinos and wastewater treatment plants. While schools don't deal with the stench of cigarette smoke and raw sewage, cafeteria cooking and cleaning chemicals can on occasion leave rooms smelling less than fresh.

Molisani discovered WellAir's odor-eliminating benefit when he attended a meeting held in a room outfitted with a purifier.

"They had left pizza and chicken wings in the room overnight by mistake, but you wouldn't have known the food was ever there," he recalls. "It was amazing."

Molisani notes that for all the benefits of the WellAir system, there's no downside. Installation in the HVAC system was easy. "They did it in about two days near Thanksgiving break, and it went very smoothly," and the purifiers are out of sight and silent.