

Maintaining Healthy Indoor Air Quality in School

Indoor air quality in schools has always been important. IAQ heavily impacts alertness and cognition, so it has a direct relationship to the well-being and performance of students. In addition, the topic has now taken on an all-new level of urgency during the COVID-19 pandemic.

US schools that have reopened need to take the best possible care of the air their students are breathing. Administrators should strongly consider reviewing existing HVAC systems, and/or deploying indoor air quality tools for schools. These tools can provide the insights they need to improve and optimize their air.

The State of Indoor Air Quality in Schools During COVID-19

Schools reopening around the world have begun to implement safety measures to try and contain the spread of COVID-19. In the US, though, infection rates continue to rise, and the US administration decreed that children will return to schools this fall – even going so far as threatening to pull funding from schools that don't fully re-open. This is why, even though some educational institutions are still remaining shut, others have no choice but to do everything they can to combat the airborne virus that is COVID-19.

To help schools, the US Environmental Protection Agency (EPA) has released a guide to help administrators ensure indoor air quality standards for schools. This guide includes guidelines on how to suppress the spread of COVID-19, with training webinars, indoor air quality tools for schools, and more. Elsewhere, independent academics are doing what they can to help. Professor Jianshun “Jensen” Zhang of Syracuse University has offered a three-step plan to improve IAQ while faced with the threat of COVID-19.

Alongside COVID-19, the portable classrooms that have become permanent fixtures in certain learning institutions are adding to the unease of many parents and teachers. These portable classrooms are becoming more common as a part of disease response, and they come with their problems. “Portable classrooms can present unique infection control and IEQ issues,” said Franco Seif, President of Clark Seif Clark. According to Seif, the reports that the most common problems with portable classrooms include:

- poorly functioning HVAC systems providing minimal ventilation with outside air;
- poor acoustics from loud ventilation systems;
- chemical off-gassing from pressed wood and other high-emission materials;
- water entry and mold growth, and;
- site pollution from nearby parking lots or loading areas.

How Poor Indoor Air Quality in Schools Affects Children

The World Green Building Council has published a factsheet about indoor air quality for schools, and how bad air affects children. According to the report, a 1000 parts per million (ppm) increase above ambient levels of CO has been linked to a 10-20% increase in days away from school. Indoor exposure to VOCs has also been associated with symptoms of Sick Building Syndrome in school children.

Sick Building Syndrome (SBS) is a collective name of various nonspecific symptoms that occur in the occupants of a building. It is usually characterized by:

- Lethargy
- Headache
- Dry and itchy skin
- Nasal stuffiness and dryness
- Sore throat
- Dryness, pain, and/or itching in the eye.

Children are especially susceptible to SBS due to their higher breathing rates. They inhale more pollutants – carbon dioxide (CO₂), volatile organic compounds (VOCs), dust, molds, etc. – per body weight than adults. Moreover, as evidenced in a Lawrence Berkeley National Laboratory study, dampness and mold in schools are associated with adverse respiratory health effects.

Even diesel emissions from school buses affect the cognitive functions of schoolchildren. In fact, districts that retrofitted school buses to reduce emissions reported significant increases in students’ English test scores, as well as smaller improvements in math, according to a 2019 study.

All of this evidence shows why, as US schools are reopening, they should prioritize keeping healthy indoor air quality for schools. This will not only slow the spread of COVID-19; it will help children stay healthier, more focused, and more productive. Another study showed that increased ventilation in school facilities is linked to improved student performance, although wildfire smoke up and down the West Coast in the fall can further complicate the matter of ventilation.

How Poor Indoor Air Quality in Schools Affects Children

Alongside the EPA's [guide](#) to securing indoor air quality standards for schools, the government body has provided guidance documents for preventive maintenance. These documents detail steps and actions that school administrators can take to ensure a sustainable indoor air quality preventive maintenance plan for their school district. They suggest four key steps:

Step 1: Make the Case.

School leaders need to convince the decision-makers – stakeholders, staff, parents, and the larger community – and secure commitments to a dedicated IAQ program. This might prove to be a challenge, considering the current economic climate. However, advocates should stress that schools and colleges which forego preventative IAQ measures typically deal with higher costs down the line.

Step 2: Develop the Plan.

Once school leaders have gained buy-ins, they need to properly develop their IAQ preventive maintenance plan. This includes routine inspections, cleaning, adjustment and repairs, and [monitoring](#). Air quality monitoring tools such as the [Awair Omni](#) provide insights and recommendations that can help secure IAQ in school buildings. Ensuring that building systems are operating effectively and efficiently will also help protect student and staff health and performance.

Step 3: Establish a Dedicated Team.

An IAQ preventive maintenance program needs its own team that will take responsibility for making sure the program runs efficiently. At least one point person – an IAQ Preventive Maintenance Coordinator – should oversee and track the program's implementation. From there, the team can be built according to the necessities of the school and its environment.

Step 4: Continuously Evaluate.

As the program continues to develop, school leaders should keep track of their goals and metrics. They can then evaluate the IAQ preventive maintenance plan and see how it has affected the health and performance of the students, staff, and the facilities. Evaluation results will help point them toward where they are winning, and where there is still room for improvement.

Step 5: Share Data with Parents and Guardians.

In a post-pandemic world, it is only natural for parents and guardians to be worried about the safety of children. As such, school leaders should establish a system that grants parents access to the data and results gathered by the IAQ monitoring program. This will help alleviate any concerns around poor IAQ affecting the children's health, and ensure that it is safe for them to be at school.

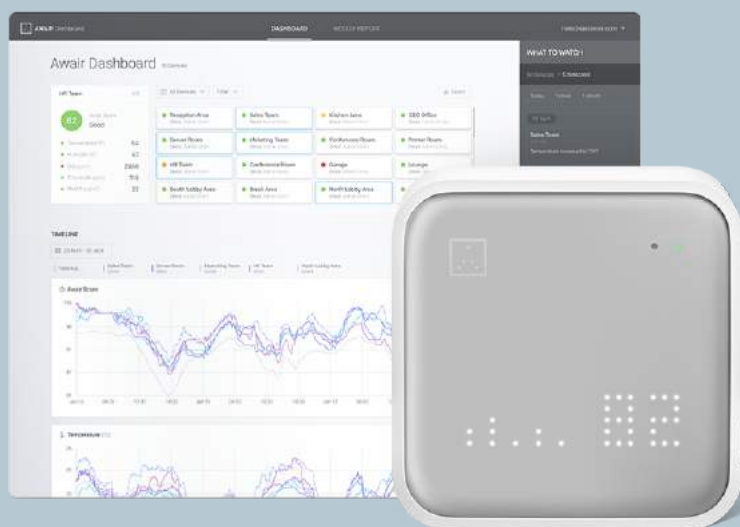


It's High Time to Start Monitoring School Indoor Air Quality

With the COVID-19 outbreak continuing, and with wildfire smoke affecting certain regions, it's important for administrators and leaders to provide healthy indoor air quality in schools. By understanding what's in the school's air, you can take the necessary measures to ensure a safe learning environment. [Awair](#) can help with this.

Awair devices can track PM2.5 (fine dust), VOCs (volatile organic compounds), CO₂, temperature, humidity, and more. There are customized install, connectivity, and power options to suit your needs, as well as software dashboard or API solutions, with data insights to help school children and staff stay safe and healthy. To learn more about Awair's capabilities, [read more here](#).

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