

TRANSFORM AIR QUALITY INTO STUDENT COMFORT

Better indoor air quality can help provide significant benefits for educational spaces, encouraging students and staff to feel comfortable in their environment.

And improving air quality doesn't have to mean an extensive overhaul – it can be as simple as giving your HVAC system the data to know when to ventilate, automatically.

Why indoor air quality matters for schools

Schools have the ability to focus on promoting student well-being by first helping to monitor poor indoor air quality.

And when it comes to improving air quality, one of the most effective methods – in terms of both results and cost – is enabling your HVAC system to monitor carbon dioxide levels to detect when ventilation is needed.

CO₂ levels are an essential method of determining air quality

CO₂ levels are a good measure of occupancy levels. As the number of people in a room increases, CO₂ also increases – and hence air quality again declines.

Beyond carbon dioxide itself, poor or inadequate ventilation can also lead to high levels of other irritants and contaminants in the air – such as allergens, microbes and pathogens, unpleasant odors, and pollutants like fine particulate matter and volatile organic compounds.

Particulate matter (PM), which often comes from outdoor pollution, consists of micron-sized particles from sources such as vehicle exhaust, power plants, and fires. These microscopic particles are harmful to breathe, yet easy to inhale.



Volatile organic compounds (VOCs), which often come from indoor pollution, consist of chemicals and gasses from sources such as cleaning products, furniture, and other building materials.

And when CO₂ is high, it's more likely that PM and VOC levels will also be high.

Ventilation shouldn't be all or nothing

Ventilation brings in fresh outside air to reduce the concentration of contaminants such as CO₂ and VOCs, while filtration helps reduce contaminants such as allergens and particulate matter.

Yet the baseline ventilation levels set by local building codes are not necessarily sufficient for the actual conditions in a building or room.

When a classroom is full, additional ventilation may be needed to maintain suitable air quality. And when people are concentrated in one area – such as an assembly in the gym – you might need more ventilation there, yet little or none in empty classrooms.

So this leads to several questions: When do you actually need to ventilate, and how much? How do you know if your ventilation is effective? And how do you know when you're wasting energy (and money) by ventilating too much?

Using sensors to track CO₂ levels is an effective way to measure these situations.



How CO₂ data can monitor ventilation

If CO₂ levels regularly exceed appropriate limits, this lets you know that you need to ventilate more.

If the CO₂ level is fine at low occupancy, yet exceeds the threshold when a classroom is full, this could mean your ventilation system struggles to keep up on busy school days.

So measuring CO₂ during peak occupancy can be a good indicator of whether your ventilation system needs service or alterations.

And when you know a classroom's CO₂ level in real time, you can implement ventilation on demand – automatically bringing in fresh air only as it's needed.

IAQ sensing made simple

Honeywell provides a full range of technologies for detecting and monitoring indoor air quality, including the cost-effective TR50 Indoor Air Quality Sensor that offer detection with flexible capabilities.

The Honeywell TR50 Series IAQ Sensor is an advanced, configurable device for commercial buildings. It monitors: Temperature (T), Relative Humidity (RH), Carbon Dioxide (CO₂), Particulate Matter (PM_{1.0}, PM_{2.5}, PM₁₀), Total Volatile Organic Compound (TVOC).

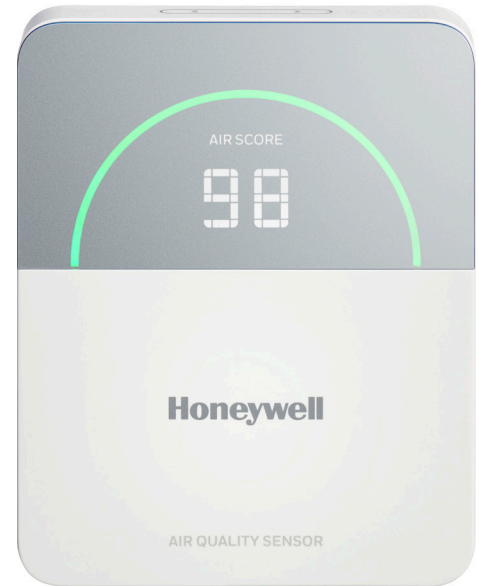
This sensor is also easy to integrate with your HVAC system for web-based readouts and centralized tracking, as well as automated ventilation on demand.

Funding may be available

We've been assisting schools and school systems around the world with tracking the air quality and comfort of their buildings- and we're here to help you too.

Various forms of funding – from government programs, grants, and other sources – are potentially available to help schools oversee indoor air quality.

We're glad to consult with you on the funding options available in your area, as well as the upgrades that would most benefit your school or district.



Honeywell TR50 Indoor Air Quality Sensor

1. "Student Health and Academic Performance – Quick Reference Guide," Environmental Protection Agency (EPA), Nov. 2012.
2. "Ventilation in Schools and Childcare Programs," Centers for Disease Control and Prevention (CDC), updated 26 Feb. 2021. Accessed 9 Feb. 2022: <https://www.cdc.gov/coronavirus/2019-ncov/community/schools-childcare/ventilation.html>
3. "Why Indoor Air Quality is Important to Schools," Environmental Protection Agency (EPA). Accessed on 17 Feb. 2022: <https://www.epa.gov/iaq-schools/why-indoor-air-quality-important-schools>
4. "Improving Indoor Air Quality in California Schools," Western Cooling Efficiency Center, University of California-Davis. Accessed on 17 Feb. 2022: <https://wcec.ucdavis.edu/improving-indoor-air-quality-in-california-schools/>

Learn more about managing your data with Honeywell to assist your cleaner air journey

hwl.co/IAQdetection

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