



INDOOR AIR QUALITY (IAQ) SENSOR DASHBOARD

As one component of our work to ensure we follow federal, state, and local recommendations on indoor air quality and ventilation in our buildings, Boston Public Schools has installed Indoor Air Quality (IAQ) sensors in all classrooms in schools. The sensors report information in real-time on key measures of air quality. The data collected from these sensors helps BPS identify, review, and respond to indoor air quality and temperature issues, and advocate for HVAC and other building investments to improve indoor environment quality.




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in all BPS classrooms, nurse's offices, and main

Offices, with a roof-top unit installed in every school building to measure outdoor air as a baseline per location.

Each sensor records the following IAQ measures:

1. Carbon Dioxide (CO₂)
 2. Carbon Monoxide (CO)
 3. Airborne particulates – Total (PM₁₀)
 4. Airborne Particulates – Respirable (PM_{2.5})
 5. Temperature (T)
-  6. Relative Humidity (RH%)

BPS has adopted IAQ standards following federal, state, and local recommendations on indoor air quality and ventilation in schools. The BPS Facilities Management team will continue to take action based on those standards. Details on the standards and response actions, and strategies for achieving optimal ventilation in classrooms, can be viewed in the [BPS Indoor Air Quality Monitoring and Response Action Plan](#).

IAQ SENSOR DASHBOARD



How has the IAQ data helped us so far?

The BPS IAQ Monitoring system has already helped us with the following:

IAQ & thermal comfort in schools

- Make timely temperature adjustments in classrooms when too hot or too cold
- Make decisions about school closures during extreme heat or extreme cold
- Increasing fresh air during school events with high emissions
- Identify activities that make IAQ worse (e.g., spraying aerosols)
- Fix issues with existing mechanical ventilation systems
- Educate the school community about IAQ in schools
- Empower teachers to monitor IAQ in their own classrooms so that they can make adjustments or report issues



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Health on an approved research study,

“Understanding indoor air quality, thermal comfort, and energy use in classrooms, and the impact of SARS-CoV-2 engineering controls, a pilot study.” The study is transforming the sensor data into research data, and includes data analysis and reporting, addressing inaccuracies in data due to calibration, connectivity, and power issues, and developing IAQ communications materials (e.g. facts sheets) for the BPS community.

[Fact Sheet #1 \(Sept. 2023\)](#)

Policies

- [Enforce policies to eliminate bus and vehicle idling near schools](#)
- [Enforce using green cleaners](#), and not allowing personal bleach-based or aerosol cleaning products to reduce asthma triggers and reduce carbon monoxide levels

Funding and Awards



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design and install new mechanical ventilation systems in 5 non-mechanically ventilated elementary schools

- Secured ESSER funding to connect the IAQ sensors to the Building Management System
- Applied for the U.S. Department of Energy's Renew America's Schools grant
- Awarded Best in Class - Energy Efficiency Plus Health from the 2023 U.S. Department of Energy's Efficient and Healthy Schools Campaign

National and International Best Practices

- Setting the example for schools across the U.S. and the world
- Sharing our story and influencing technical assistance for K-12 schools - White House COVID-19 Taskforce and Office of Science and Technology Policy (Clean Air in Buildings Challenge), U.S. EPA, National Caucus of Environmental Legislators, Environmental Law Institute,



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BOSTON SCHOOLS, MA DECEMBER 2019

- Joined the White House Clean Air in Buildings Challenge and signed the Pledge
- Participated in U.S. Department of Energy (DOE) Schools Focus Group and joined the DOE's Efficient and Healthy Schools Campaign



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2300 Washington Street
Roxbury, MA 02119

617-635-9000

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