

smartIAQ Simplifies the HVAC plus Cleaner Air

Background

A South Carolina elementary school was considering upgrades to an aging HVAC system; replacing the dedicated outdoor air system (D.O.A.S.) was a primary concern. The school and the consulting engineer considered several approaches, including more ventilation efficiency through ASHRAE 62.1 IAQP. The original ventilation rate procedure (VRP) design: 160 CFM from the DOAS and 200 CFM from an in-room heat pump. The parties considered eliminating the DOAS wing of the school if smartIAQ was proven able to maintaining or improving classroom air quality.

Deployment & Testing

Prior to decommissioning the DOAS, air quality testing on the VRP design was conducted. smartIAQ, configured as a distributed unit, was installed and DOAS supply to the room turned off. One week later testing was repeated on the IAQP design. The results (on right) indicate air quality improved on critical 62.1 design compounds and many other compounds.

Conclusion

The results align with ASHRAE direction that the IAQP, with **effective air cleaning is more efficient and may lead to cleaner indoor air**. smartIAQ is proven efficient, effective, and safe for outdoor air reduction, leading to more cost-effective and simple HVAC systems.

Analyte	VRP	IAQP w/ smartIAQ	Change %
Acetone	20	18	(10)
Formaldehyde	16	14	(13)
Acetaldehyde	15	10	(33)
Ethyl acetate	94	5.9	(94)
Hexanal	4.5	2.4	(47)
Propene	12	1.9	(84)
Freon 11	3.5	1.8	(49)
Dichlorodifluoromethane	3.1	3.6	16

units are $\mu\text{g}/\text{m}^3$

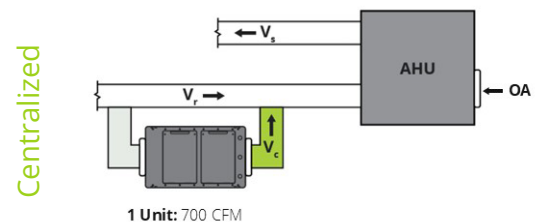
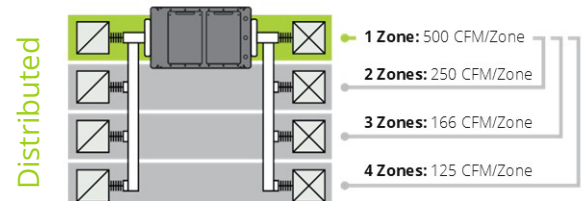
62.1 design compounds are highlighted
air quality testing analysis by a 3rd party lab

What is smartIAQ?

smartIAQ is an air cleaning system that aligns with ASHRAE standards. It provides on-demand, closed-loop control, verifying that the air in the space is achieving your design goals in real time while extending filter life. \$1 of smartIAQ saves you \$4-\$10 in HVAC equipment. smartIAQ cleans air by extracting contaminants vs diluting them, delivering reliably clean air.

What does it do?

Through air cleaning, smartIAQ allows designers and owners to reduce outdoor air to reduce expensive and complex HVAC systems for immediate return on investment. It is available as a distributed or centralized system.



Features

1. Sensors drive operation to achieve air quality goals,
2. Long life filters provide 1-3 year operation without replacement,
3. Quiet and efficient EC blower, and
4. NPBI output for small particle and pathogen control

smartIAQ only runs when needed, saving energy and extending filter life.

