

## IAQ - What's New?

### Pandemic to Endemic (and that's not all)

For indoor air quality (IAQ), 2022 is already following the encouraging developments of 2021.

#### 2021

At IFMA World Workplace 2021, Dr. Joseph Allen gave the plenary, *HEALTHY BUILDINGS: HOW INDOOR SPACES DRIVE PERFORMANCE AND PRODUCTIVITY*. He talked about willingness in the past to acclimate to indoor air constituents breathed in or out at work roughly 6000 times a day. He focused on exhaled carbon dioxide (CO<sub>2</sub>). Extensive research now shows that CO<sub>2</sub>, in amounts historically present and hardly thought about, is a significant actor against cognition. In an October 2021 article in The Atlantic, "Employers Have Been Offering the Wrong Office Amenities; Workplaces need fresh air, not foosball tables and coffee bars", Allen points out that controlled ventilation with outdoor air enables confident and reliable management of CO<sub>2</sub>. Monitoring has become convenient and inexpensive. Added ventilation brings energy considerations, but integrated control systems can optimize thermal comfort and CO<sub>2</sub> levels obtainable under the circumstances.

As the biology and epidemiology of Coronavirus and COVID-19 became better known with evidence of transmission by virus suspended as aerosols, 2021 brought refined understanding of controlling suspended particle contaminants. The IFMA OMHS Community and FMCC produced an HVAC industry panel discussion<sup>i</sup> and key points summary<sup>ii</sup> in fall of 2021, bringing out a guide to AHRAE advice and resources for FM at the same time. The guide remains pertinent.<sup>iii</sup>

For FM consultants serving clients, with their various properties and occupancies, the COVID-19 pandemic raised the profile of IAQ because viral particles causing infection can be readily suspended in air from breath and reduced through several means, operating alone and together. Concentration of virus in the air at any specific indoor location and duration of exposure figure strongly in the likelihood of disease. We come into the new year richened with knowledge and methods - and the attendant hazard of confusion over what to do in every instance.

#### 2022

At the start of 2022, FM is in a steadily improving position re: IAQ knowledge, options, economy, and confidence in serving facility stakeholders. Knowledge is more detailed about what is in the air and what/how to manage. If, as now seems likely, COVID-19 becomes endemic in 2022 and after, where does that leave FM?

“There is no silver bullet”<sup>iv</sup> for COVID-19, or for IAQ overall. Accumulating research in workplace safety, health, and productivity related to IAQ is ongoing, gaining in knowledge, participants, and benefits. More than responding to the current pandemic is involved. HVAC engineering and well-informed O&M flourish. Instruments, controls, and systems for monitoring, analyzing, and adjusting IAQ are progressively more useful and economical. Progress in these two areas - occupant well-being and HVAC knowledge and practice - encourage the view of optimizing IAQ.

Particles of biological origin, only one constituent of indoor air, can include fragments and debris as well as viable bacteria, molds, and viruses - all suspended as aerosols, which do not settle out. Some can cause disease. Going forward in 2022, as the economy reconstitutes from COVID-19 in 2020 and 2021, FM has a range of solutions to apply to meet corporate and occupant needs and expectations.

In a webinar presented on January 27, 2022, Troy Raszka and Rajiv Sahay<sup>v</sup> gave an overview of the indoor environment by building types, functions, occupancies, and health & hygiene aspects, followed by air containments typically present. For living biological particles, temperature and humidity influence their numbers and distribution. The presenters reported experiments with bipolar Ionization as a means of joining contaminants by mutual attraction, resulting in increased susceptibility to cleaning technologies. This is an encouraging result. Most significant and memorable, however, was the commentary that followed. A systematic guide to IAQ is no more or no less than:

- Evaluate an IAQ baseline by space location and use
- Clean and recondition HVAC as needed and monitor conditions and IAQ performance
- Target and monitor particles, pathogens, and other constituents as applicable by space and occupancy

There is no silver bullet, but in 2022, practical information is plentiful, as the IAQ body of knowledge grows. This is very much to the benefit of FM and our stakeholders. Welcome to a new year.

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<sup>i</sup> IFMA OMHS and FMCC, 2021, “SOMETHING IN THE AIR, A Panel Discussion of Indoor Air Quality in Light of the Ongoing Pandemic,” <https://attendee.gotowebinar.com/recording/3221878450049713933>

<sup>ii</sup> IFMA OMHS and FMCC, 2021, “Pointers from last week’s (09/23) OMHS Panel Discussion, SOMETHING IN THE AIR - IAQ in the time of COVID” [https://docs.google.com/document/d/1\\_tUXpHtz-loz6QiDDJoL2DNPnaWdVTWY/edit?usp=sharing&oid=109358123971331708131&rtpof=true&sd=true](https://docs.google.com/document/d/1_tUXpHtz-loz6QiDDJoL2DNPnaWdVTWY/edit?usp=sharing&oid=109358123971331708131&rtpof=true&sd=true)

<sup>iii</sup> IFMA OMHS and FMCC, 2021, “ASHRAE on IAQ and COVID-19”, September 2021 [https://drive.google.com/file/d/1XcR\\_nZEhVuwfyOYQNxVowNY-KblatiiU/view](https://drive.google.com/file/d/1XcR_nZEhVuwfyOYQNxVowNY-KblatiiU/view)

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<sup>iv</sup> Alan Wozniak, Pure Air Control Services, in conversation and writing on several recent occasions.

<sup>v</sup> Troy Raszka is Director of Marketing for Pure Air Control Services and Dr. Rajiv Sakay leads the Environmental Diagnostics Laboratory of Pure Air Control Services of Florida, USA.

Sahay, R., Wozniak, A., Rivera, H., Mendez, J., 2021, "Bipolar Ionization and its Contribution to Smart and Safe Buildings", 45pp, White Paper. The research reported was carried out under the auspices of CABA, Continental Automated Buildings Association. Available without charge [caba.org/whitepapers](http://caba.org/whitepapers).

*Pure Air Control Services is an active program participant and supporter of IFMA FMCC and OMHS.*