

‘LET’S DO THE EASY STUFF FIRST’

Then we can start thinking about the more high-minded approach to a better IAQ future, says **Jeremy McDonald**

SINCE the onset of the pandemic, some of the best minds in the Indoor Air Quality (IAQ) field have suggested that we craft something like a “Universal Declaration on IAQ” to prepare our civilisation better for the next respiratory outbreak.

A well-intentioned statement by these experts would likely call for sophisticated solutions, capital-intensive improvements and new regulations. This would be a noble effort.

In the meantime, I have a proposal that is less lofty: Let’s get back to basics and ensure that time-tested best practices for HVAC are being implemented as part of our normal facility management practices.

Allow me to explain. As an HVAC systems engineer, I have been doing building assessments, energy studies and retro-commissioning for more than 25 years. During my time in the field, I have seen every IAQ foul-up there is – supply and exhaust fans with no belts, plywood covering the air inlet to unit vents, dampers with a 2” x 4” locking the actuator in place, ducts leaking like Swiss cheese and too many dysfunctional systems to count.

There is no doubt in my mind that our deferred maintenance made the COVID-19 pandemic much worse than it needed to be. And it will make the next pandemic worse if we don’t do something about it. But before we craft new aspirations for providing better air indoors, let’s first try to enforce the policies that are already in place throughout most of the world.

If we can’t even get property managers – not every property manager, but some – to implement the most basic IAQ practices, such as ensuring proper ductwork and minimum airflow, tracking CO₂ levels and ensuring fan belts are properly tightened, then what are the

chances of more expensive or complicated solutions being successful? In other words, let’s do the easy stuff first, then we can start thinking about the more high-minded approach to a better IAQ future.

With that in mind, here is a modest four-step plan to get back to the basics for better IAQ. Several of these solutions are time-tested as well as reasonably inexpensive. This programme also relies on existing laws and readily available technology.

Step 1: Enforce existing laws

Throughout the developed world, commercial buildings that do not have operable windows are required to provide a minimum ventilation. Many buildings, especially those that have been retrofitted, simply don’t meet the minimum code for ventilation and temperature control. While this may seem egregious, we have too many examples of spaces that don’t abide by the Building Code. These spaces need to be required to meet the law.

Unsuspecting tenants and renters should not be exposed to substandard IAQ. I recommend that landlords be required to bring their buildings up to Code. This would address the worst IAQ issues and give tenants and renters a fighting chance to avoid “super spreader” incidents, which occur when you couple high density with no ventilation.

Step 2: Annual testing

One of the anomalies in the current Building Code is there is no requirement for annual “check-ups” on ventilation systems – except for critical healthcare spaces, such as operating rooms. Any engineer or contractor can attest to the mad rush we experience to ensure buildings “meet Code” before an occupancy certificate is granted. With our current “go-go culture”, HVAC professionals are giving buildings



Jeremy McDonald is a principal of Guth DeConzo Consulting Engineers, in New York. Before the pandemic, he was an adjunct professor at Rensselaer Polytechnic Institute. Recently, he was the technical consultant to the New York State Energy Research and Development Authority in development of an IAQ guideline for Higher Education in NY: “Covid-19 Response Guide, State University of New York”. He may be reached at jmcdonald@guthdeconzo.com.

a pass without truly ensuring they have sustainable proper IAQ.

With a requirement for annual testing, similar to our Fire Code requirement, we can at least ensure that a professional is revisiting the basic ventilation requirements on an annual basis. While this won’t totally avoid every problem, it will highlight major issues and ensure that they are addressed.

Step 3: Continuous monitoring

With continuous monitoring of IAQ, we can transparently assure the public that a space is safe to enter. By monitoring key IAQ variables – cfm/sq ft, CO₂, VOCs and particulate count – we can ensure that spaces have proper IAQ on a continuous basis. The technology is available and, if reasonably regulated, can be quite affordable.

In future columns, I will discuss best available technologies that can be implemented and provide transparent feedback to occupants on the IAQ state of the space they will enter. History has shown that users make better decisions when they have consistent transparent information. Be it calorie counts, a Zagat survey or a building energy score, users do respond to transparent and easy-to-understand data.