RED ALERT!

With building tracing, spaces with sub-optimal IAQ would be red flagged, persuading occupants to think about leaving or staying; nothing could be a more powerful incentive for building owners to take remedial action, says **Jeremy McDonald**

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THE pandemic revealed that Indoor Air Quality (IAQ) matters. Before COVID-19, terms like 'ventilation effectiveness', 'ultraviolet', 'ASHRAE 62' were known only to HVAC engineers; today, there is general awareness of the issues that underpin them.

Awareness isn't enough, though. *Climate Control Middle East* magazine has already published many articles regarding the basics of IAQ best practices and the basic need to open the windows and dampers, clean the air, and to tune up our HVAC and BMS systems. However, if we want to futureproof our buildings from the next pandemic, we need to implement ongoing monitoring of IAQ to ensure we maintain our building health.

In 2020, I proposed what I then called 'building tracing', in response to the government-run 'contact tracing' programme. My point was that specific buildings with poor IAQ could also qualify as super-spreaders of the virus. Now that we are beyond the acute phase of the pandemic, we need to incorporate building tracing into our standard practice through continuous IAQ monitoring.

Building tracing as a concept

The metrics for good IAQ are straightforward: Ensure adequate ventilation per well-established building codes, ensure good filtration and ensure CO_2 concentrations are not rising quickly with occupancy. Add a properly installed and commissioned air-cleaning device, and the building space is now above code and minimising the ability of viruses to propagate.

However, for many buildings, the existing IAQ is sub-optimal at best or non-existent in too many cases. Lack of ventilation, sub-optimal construction or deferred maintenance are the most common reasons for poor IAQ, but since air is invisible, most people have no idea when they are walking into a space with good or poor IAQ.

With building tracing – that is, continuous monitoring – owners would be required to report the IAQ of the space, which would inform the occupant of the IAQ conditions before they enter. By providing information in a transparent manner, the spaces with sub-optimal IAQ would be quickly identified, which would force changes to improve the IAQ. Moving forward, when issues occur, building management would have the tools necessary to identify the problem in a timely manner, thus allowing the opportunity to fix the problem and protect the building occupants.

With the Internet of Things, we have well-established and cost-effective infrastructure that can provide real-time feedback, data tracking, and reporting to anyone with an IT connection.

In addition to help mitigate viral spread, building monitoring systems can help mitigate issues with mould, allergies and other antagonists to human health. When used correctly, we can reduce our carbon footprint by allowing HVAC systems to reduce the provision of ventilated air, which is heated and cooled, when conditions permit.

Doing it the Boston way: Below are photos of screenshots, which are readily available to all stakeholders, including administration staff, operations and maintenance personnel, regulators and, most important, teachers, parents and students