Application Article 247

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Sick buidling syndrome:delivering the complete picture with instant clarity

As the move to more tightly-structured indoor air quality (IAQ) legislation continues, environmental consultants, safety professionals and building managers all search for more accurate, reliable and flexible systems to monitor potentially harmful indoor environments.

First identified as ‘office illness’ back in the 1970s, as data emerged linking office workers in newly constructed buildings and tenants in new homes with a range of non-specific symptoms, sick building syndrome (SBS) as it became known was identified in around 20% of newly constructed commercial buildings in Europe.

Research soon linked SBS and its impacts on humans - such as headaches, eye irritation, respiratory discomfort, dizziness, visual disorders and memory impairment - to a number of specific indoor sources, many of which contain volatile organic compounds (VOCs). These sources include carpets and furniture, cleaning products, office equipment, human occupancy as well as microbial action and pesticides.

These specific sources release VOCs into the atmosphere, known as outgassing. The effects of outgassing are often intensified by poor heating and ventilation (HVAC) systems or the over-use of air recirculation in both residential and commercial buildings, exacerbating symptoms.

Now, with the emergence of potentially much more stringent IAQ legislation, those with environmental, safety, hygiene and building control responsibilities are beginning to recognise the complexities of monitoring IAQ, particularly in larger buildings.

This is because there is now a growing understanding that the impacts of SBS are not necessarily uniform across a building, and may vary significantly over a single floor. And this variation may well be caused by human occupation, or other variables throughout the course of any given period.

The monitoring complexities caused by lack of uniformity in IAQ can be further exacerbated by the potential for additional reading errors caused by humidity or contamination. These errors can range between 15-20% and can, in combination with lack of detailed zone-by-zone data, render the entire monitoring process void.

To overcome these significant issues and the potential monitoring inaccuracies they can cause, Ion Science undertook an extensive research programme to develop a system designed to deliver highly accurate, zoned and continuously monitored IAQ data. That system is Corvus.

Firstly, the Corvus IAQ monitor features the patented Ion Science advanced Fence Electrode. This technology is proven to deliver fast, highly accurate and reliable measurement under a range of challenging conditions and is generally unaffected by humidity or contamination.

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This means that unlike competitive systems, where humidity such as steam from kitchens or vapour emanating from large concentrations of people, or even where excessive dust may cause errors of as much as 20%, Corvus will maintain complete accuracy under such conditions.
Secondly, Corvus goes on to complete the IAQ picture by offering continuous and highly accurate humidity, temperature and barometric pressure information so that variables, such as human proximity can by tracked, day and night.

And thirdly, this continuous, highly accurate IAQ monitoring can also be tracked throughout the building zone-by-zone, floor-by-floor no matter how large the facility may be.
Corvus can be installed as a fixed or temporary semi-fixed wireless system, allowing for facility-wide IAQ data collection.

The smart wireless system is completely healable, meaning in the unlikely event of a module wireless outage, system proximity sensors will locate the next local Corvus sensor to maintain service.

This smart system also ensures the faulty unit continues to collect data for later download.
For ease of use Corvus continuous, zoned data can be accessed on-screen as interactive motion graphics. This means users, whether experienced environmental consultants, safety and hygiene professionals or building managers, will have a complete picture of ever-changing environmental conditions with instant clarity.

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