White Paper

Indoor air quality – do you need a policy?

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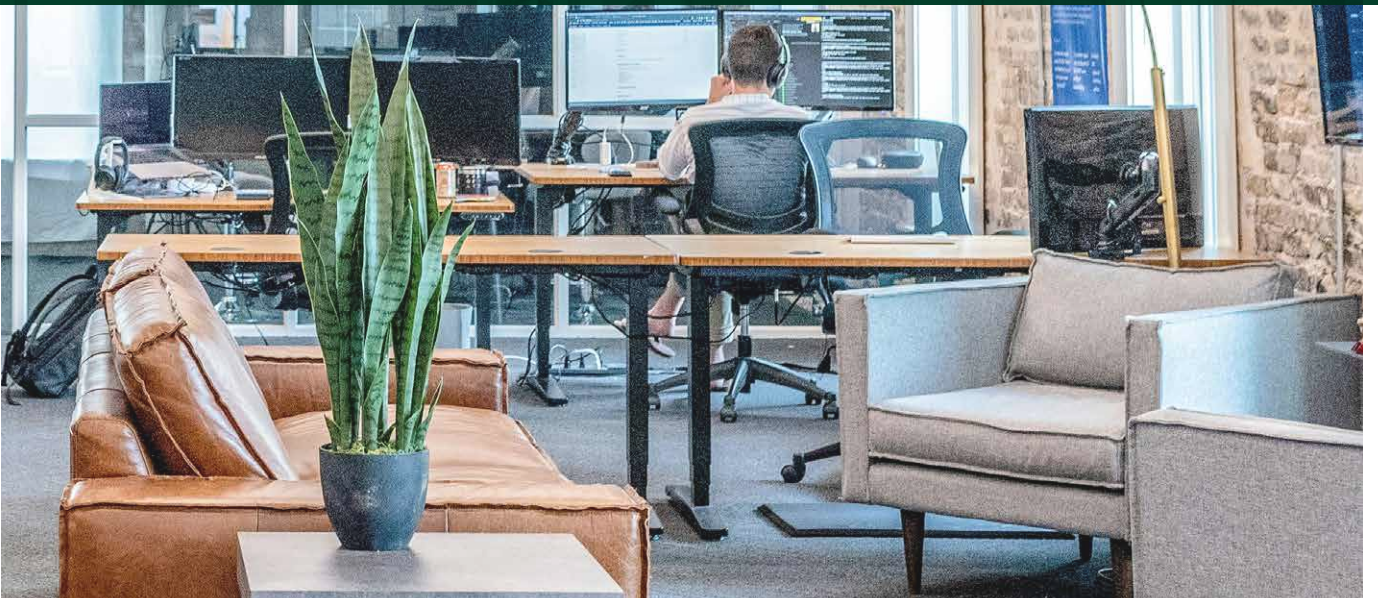
Indoor air quality - do you need a policy?

Currently, both building environment and wellbeing are very topical issues. Add to this a push by many organisations for people to 'get back to the office', are workplace and facilities managers missing an opportunity with indoor air quality (IAQ)?

Developing the theme of our January 2024 whitepaper (Air pollution, air quality and the workplace air white paper (assurityconsulting.co.uk)), this month we examine whether formalising your IAQ management makes good business sense.

In this whitepaper:

1. Why is IAQ so important?
2. What type of air-related complaints are most raised by occupants?
3. Indoor air quality and wellbeing
4. Are there any regulations covering indoor air quality?
5. What do we see from an air quality perspective?
6. What management information do you have for your IAQ?
7. How can you develop IAQ management?

1. Why is IAQ so important?

When you look at business operation and focus throughout industry, wellbeing, recruitment and employee retention, and user satisfaction are all significant factors.

With predictions stating that in the UK, people spend 90% of their time inside, it comes as no surprise that air quality is under scrutiny too. Having specific metrics will be beneficial to help to quantify this move toward air quality and employee wellbeing:

- Improved health;
- Better concentration;
- Higher levels of satisfaction with an environment;
- Lower rates of absence from work;
- Better quality of sleep; and
- Reduced exposure to a wide range of air pollutants.

With such serious impacts on both our physical and mental health – as well as the financial implications – the importance of indoor air quality and its role within the overall indoor environment, is something that needs to be considered.
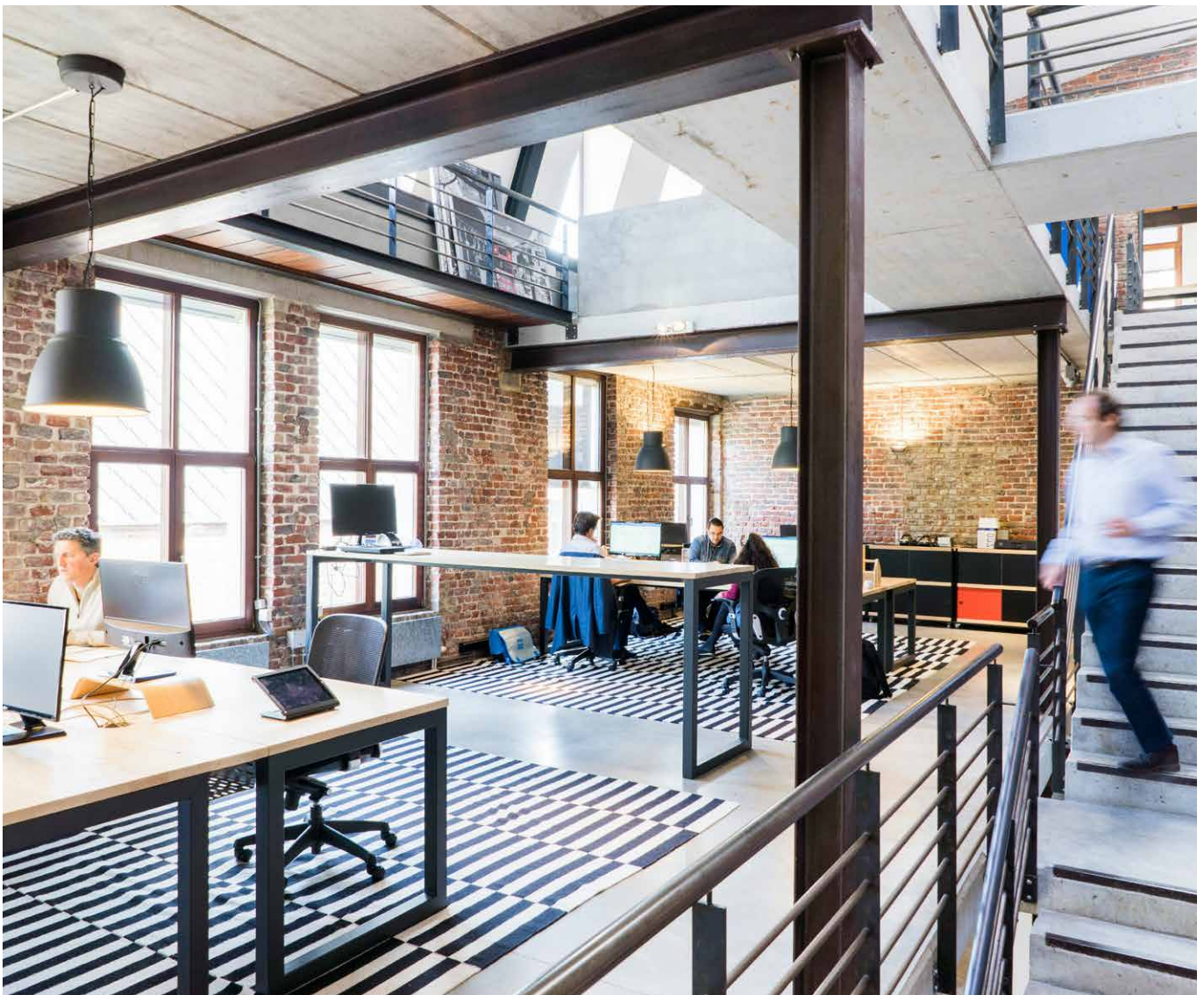
2. What type of air-related complaints are most raised by occupants?

A recent polling of workplace professionals during one of our seminars, the most raised complaints were identified as:

- Temperature – too hot/too cold - 100%
- Draughts - 42%
- Odours/smells - 38%
- Symptoms - headaches, coughs - 29%
- Stuffy/stale air - 25%
- Humidity – too low/too high - 21%

As clearly demonstrated, dissatisfaction about temperature is at the top of the list for a lot of organisations and result in numbers of complaints all year round. For comfortable working conditions you should be aiming for:

- In the winter months temperatures of 21-23°C and in the summer just slightly warmer than that at 22-24°C, but in always satisfying all occupiers with thermal comfort conditions can be a challenge!

- Airflow is another aspect of air quality that we have lots of queries about - draughts can cause discomfort and result in complaints. Conversely, low airflow could indicate poor ventilation and queries about stuffy conditions.

Together, issues with temperature and airflow can often be linked to carbon dioxide levels. At extremely high levels (i.e. up to or over 5000 ppm – parts per million) symptoms such as breathlessness, visual impairment, sweating and even tremor or loss of consciousness may manifest themselves. However, most of the time the levels of carbon dioxide present in a building will not have any adverse effects on human health. Increased carbon dioxide levels (above 1000 ppm) make people feel about 2°C warmer – wellbeing can therefore be affected, and you can incur more complaints about thermal discomfort, for example (where temperature readings are within set-points). If levels exceed 1000 ppm, conditions inside can feel stuffy, and some people can start to feel lethargic and may even suffer from headaches.

Odours and smells are rarer issues, but not uncommon. Concerns about, or reactions to odours can be connected to anything from specific chemicals or solvents, food/cooking, 'stale air' or even strong perfumes or aftershaves. The difficulty with responding to these complaints is that a non-specific 'smell' can be the result of a combination of things, so it is difficult to test for, but you can test to eliminate certain chemicals or gases to respond to those complaints.

Our poll indicated that relative humidity tended to be less of a problem, although:

- Low relative humidity levels (less than 35%) can result in symptoms such as sore eyes, having a dry throat, itchy or dry skin, and a stuffy nose. It can also contribute to static conditions in an office environment; and

- High relative humidity levels can conversely lead to condensation and damp, causing allergens through mould and contributing to some of those smell issues.

Other contributory factors that play a significant part in IAQ are dust levels and microorganisms. With many coughs and colds blamed on the building air conditioning and 'smutting' of supply grilles used as 'evidence' of poor air quality, both can cause dissatisfaction. However, is this really the case and what actual evidence do you have in defending such claims?

All these aspects can be disruptive for occupants, organisations and particularly FM, impacting on productivity, cognitive function, wellbeing and time.

3. Indoor air quality and wellbeing

Wellbeing as a subject and provision has seen a rapid growth for organisations in recent years and can now cover (and this list is not exhaustive) aspects of:

- Mental health;
- Equality, diversity, and inclusion;
- Exercise;
- Sleep;
- Financial wellbeing;
- Work/life balance;
- Nutrition and healthy eating;
- Mindfulness; and
- Social, community and charity.

As an example, mental wellbeing over the past 10 years has rightly become a key business focus. The Health and Safety Executive (HSE) have reported that in 2022/23, "17.1 million working days lost due to work-related stress, depression or anxiety".

Many of the organisations we work with have good programmes in place to support their employees in combatting mental health issues with a range of options available and publicised – these often being linked to some of the other aspects highlighted above as well. With 'poor working conditions' often cited as a cause of stress at work, does not a similar approach to looking after our building environments make sense too?

4. Are there any regulations covering indoor air quality?

There are several pieces of health and safety legislation and guidance that relate to indoor air quality including:

- The Health and Safety at Work etc. Act 1974
- The Control of Substances Hazardous to Health Regulations (COSHH) 2002
- The Workplace Health safety and Welfare Regulations 1992
- EH40 – Workplace Exposure Limits

EH40 contains the list of workplace exposure limits for use with the COSHH Regulations. These are the legal limits set for a wide range of substances (including dusts, carbon dioxide and various volatile organic compounds (VOC) limiting individuals exposed to at work. They comprise short- and long-term exposure values.

Section 6 of the Workplace Health safety and Welfare Regulations 1992 state that 'Effective and suitable provision shall be made to ensure that every enclosed workplace is ventilated by a sufficient quantity of fresh or purified air'.

It also states, 'Enclosed workplaces should be sufficiently well ventilated so that stale air, and air which is hot or humid because of the processes or equipment in the workplace, is replaced at a reasonable rate.' And 'the air which is introduced should, as far as possible, be free of any impurity which is likely to be offensive or cause ill health.'

Section 7 of the Workplace (Health Safety and Welfare) Regulations states that the 'temperature in all workplaces inside buildings shall be reasonable'.

The extent to which you will need to monitor your workplace will therefore vary depending on the type of activities and processes you have in place. This will dictate what controls may be necessary to comply with the requirements (local exhaust ventilation, PPE, surveillance, etc.). For many offices, a suitably accredited workplace environment assessment, should not only demonstrate you are meeting your obligations, but also reassure occupants that their IAQ is good too.

## 5. What do we see from an air quality perspective?

Contrary to perception, IAQ measured across 1000s of our customer buildings over the last 30 years is much better than many people believe. As a snapshot, and reflecting conditions pre and post the COVID-19 pandemic, our results from database research we carried out for locations where issues were identified for microbiological air quality and carbon dioxide levels found:

Test/time	2023	2022	2021	2016-2019
Air				
Microbiological	2%	2%	1%	1%
Carbon dioxide	2%	1%	0%	4%

While there have been some slight changes, overwhelmingly our work is confirming that the indoor environment is of a very good quality. More specifically, carbon dioxide levels have been better on average in recent years, primarily down to the changes in overall occupancy levels and increased ventilation run times, as would be expected.

Microbiologically, the slight change more recently is primarily down to physical maintenance issues (filter changing/fitment or lack of it, equipment servicing and cleaning). Each of these having been picked up early through our workplace environmental assessments, were easily rectified and so caused no longer term detrimental effects.

Since the pandemic there has been a push to have installed all sorts of additional controls, equipment, and technology to measure and improve IAQ. The question must be asked though, why and on what basis? Accepted that in some environments additional control may be needed, but if the assumption is because the perception is that IAQ is poor, what is this evidenced on? Because if you haven't had any form of meaningful, independent, and competent assessment, you may be spending money on a solution to a problem that doesn't exist.
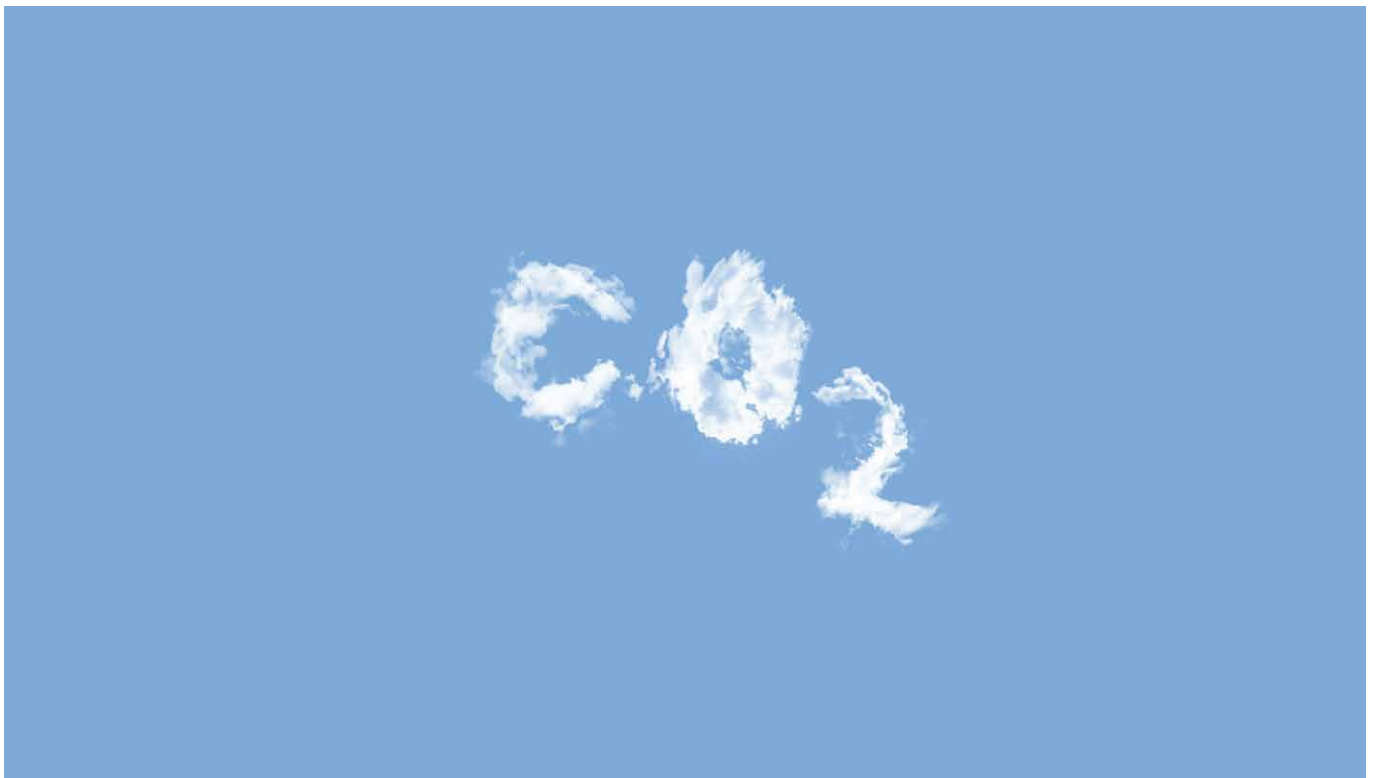
6. What management information do you have for your IAQ?

Another question in the polling work we carried out was, "If you were asked to provide detailed information on your IAQ, what do you have?" The results showed:

- A written scheme for the maintenance/monitoring of air systems - 52%.

- A clear process for occupants to raise concerns regarding IAQ - 48%.

- An independent review/audit of IAQ - 43%.

- Documented evidence of written scheme tasks being completed - 38%.

- IAQ policy - 19%.

- Clearly defined responsibilities - 19%.

- IAQ training for maintenance teams - 10%.

- IAQ training for responsible persons - 0%.

- None of these - 24%.

Around 50% of those polled had a scheme in place and/or a process for dealing with any concerns raised around IAQ. Slightly less (43%) however, would be able to rely on evidence in the form of specific reviews/audits to demonstrate the performance of their indoor environment conditions, and 38% said that their written scheme was being completed.

Highlighting a potential gap, 24% of responders had none of the initiatives in place and in terms of policy, responsibilities, and in overall training this rose to 80%.
There is a clear opportunity here for workplace and facilities managers to:

- Promote the work being done and the quality of the building environment;

- Inform stakeholders (and dispel myths/negative perceptions) around IAQ; and

- Positively contribute to their organisation's wider wellbeing initiatives.

7. How can you develop IAQ management?

With your current IAQ management, what do you already have covered and where are the areas you could improve upon, and implement moving forward?

Some questions/actions you could consider include:

- Do you have an IAQ policy? – What do you want to achieve from this? How will success be measured? Are responsibilities clearly outlined?
- Is IAQ part of your wellbeing strategy?
- Do you have a communication pathway in place for when issues arise regarding air quality and comfort conditions?
- Have you/do you carry out any form of credible independent assessments of your IAQ?
- Do you have a written scheme in place for the maintenance and monitoring of your air systems?
- Have you identified/set any control measures to achieve safe and comfortable air quality inside your building?
- Are those involved in IAQ suitably trained?
- Do you check, inspect, and monitor your air systems, indoor air quality and comfort conditions?
- Is your ventilation maintenance and management information formally documented?
- Have you investigated the causes of any issues with your air systems performance and/or any complaints from occupiers?
- Do you review your activities regarding indoor air quality and comfort conditions?

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