

A FACILITY MANAGER'S GUIDE

# Get ahead of the regulators: Why now is the time for buildings and organizations to get a handle on indoor air quality

Public health bodies are producing a growing range of guidelines and recommendations on the topic of indoor air pollution. Now is the time for organizations to prioritize indoor air quality (IAQ) before future regulations force their hand.



# Foreword



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The damage outdoor air pollution can do to our lungs has long been recognized and there is a range of legislation in place across the [United States](#), [Europe](#) and other territories to reduce its illeffects. Steadily, health professionals and organizations are switching their focus to indoor air quality (IAQ) which can have an even more profound impact on our wellbeing, given that we spend up to [90%](#) of our time indoors.

The World Health Organization (WHO) is among the international bodies studying this issue and developing [guidelines](#) aimed at ensuring we can all breathe cleaner indoor air. Many countries have introduced smoking bans that dramatically improved IAQ in public buildings and this success is regarded as a precedent for [taking further action](#).

Governments and international organizations have become proactive when it comes to tackling outdoor air pollution, developing action plans, regulations, and targeted interventions. Cities use measures like London's 'toxicity charge' to reduce the number of older, more polluting vehicles in congested areas. And car manufacturers are subject to [exacting emissions criteria](#) so that newer models are cleaner and greener.

[Carbon neutrality](#) has become the new target for governments keen to reduce global warming and provide cleaner air for their citizens, requiring new laws which crack down on pollutants. As we understand its effects on health more and more clearly, IAQ will soon become subject to a similar legislative agenda.



A hallmark of leading organizations is that they don't simply react to challenges as they arise; they see change coming down the track and plan accordingly. By prioritizing IAQ, businesses, schools, and other institutions future-proof themselves against the inevitable tide of regulation, as well as providing the healthiest, most productive environments for building occupants.

In this guide, we explain how monitoring IAQ in your building can help you get ahead of the regulators. The exciting thing is that it also makes sure you get the most out of your people, by giving them safe, pleasant surroundings to do what they do best. What's more, operational efficiencies and cost savings will also flow from having a better handle on IAQ.

# The growing importance of indoor air quality





We're developing an ever greater understanding of how indoor air pollution damages our health and affects how we work and learn. Buildings have become more airtight in order to improve energy efficiency, but that also causes contaminants to build up in increased concentrations.

Without effective action, we're at risk of breathing damaging amounts of pollutants that cause medical problems, dull our thinking, and make us uncomfortable.

One such substance, radon, is a colorless, odorless, radioactive gas that is produced when uranium breaks down in soil and rock. It enters buildings through cracks in the foundations and has become the [biggest cause of cancer](#) for non-smokers.

High levels of carbon dioxide can lead to headaches, drowsiness, restlessness, and [startling drops in cognitive ability](#). Likewise, volatile organic compounds, or VOCs, are emitted from modern paints, solvents, cleaning products, and new furniture. They irritate the [eyes, ears, nose and throat, contribute to respiratory illnesses, and can impair the memory](#).

Conditions like humidity, temperature, and air pressure also affect how we feel and perform. They're linked to complaints like headaches and migraines, and high humidity can cause mold growth in buildings.

As mentioned previously, people in industrialized nations spend 90% of their time indoors and, according to the US Environmental Protection Agency (EPA), concentrations of key contaminants can be up to five times higher indoors than outdoors.

The WHO estimates that poor quality indoor air is responsible for nearly 3% of the global burden of disease, while the State of Global Air survey calculates that ambient and household air pollutants combined can be responsible for cutting up to 2 years and 6 months from life expectancy.

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**There is compelling evidence that a healthier indoor environment can boost the performance of workers and students.**

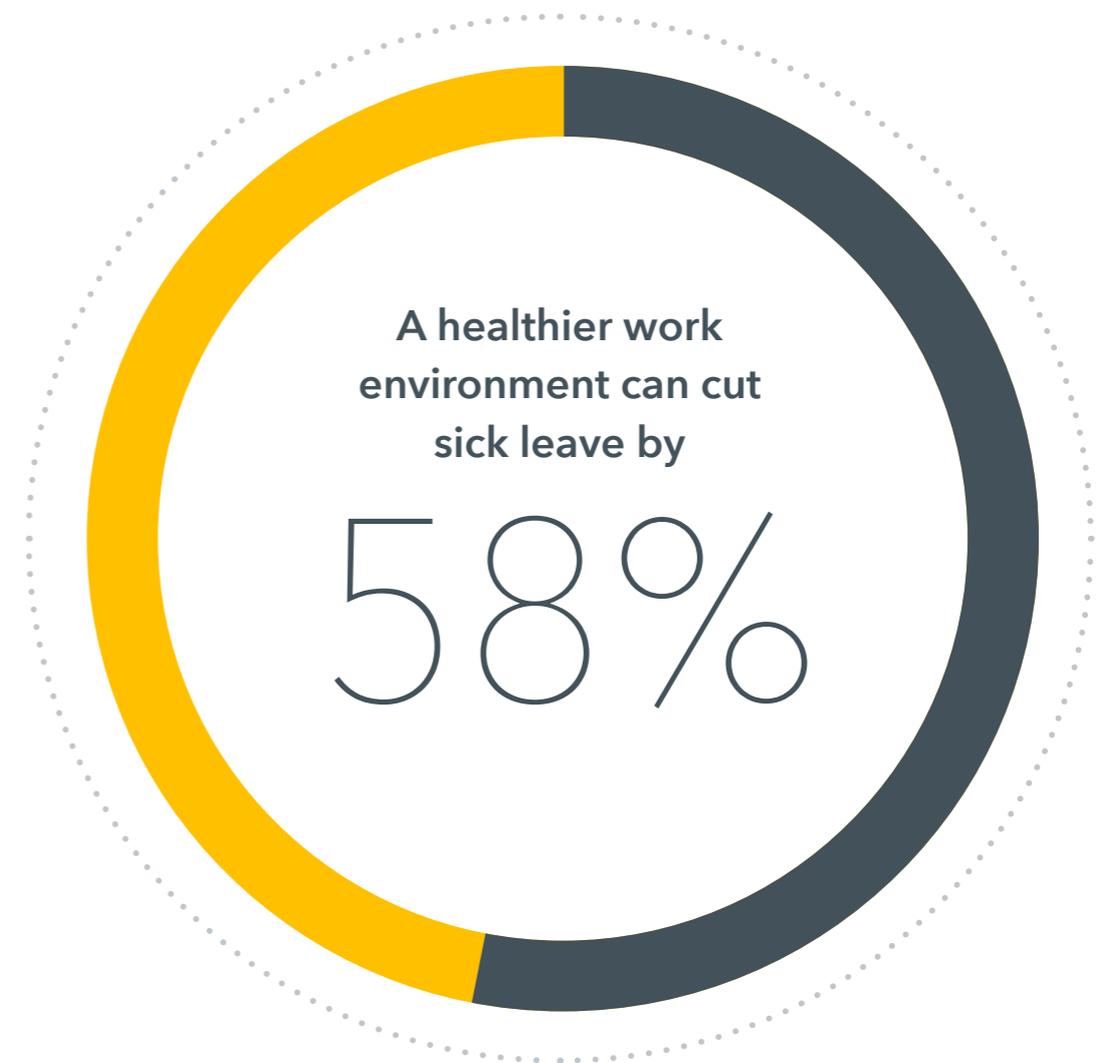
Improved indoor environmental quality can boost decision-making scores by 101%, with an impact on productivity that equates to each employee generating an extra \$17,000 per year.

The World Green Building Council published [a report in 2018](#), demonstrating that a healthier work environment can cut sick leave by 58%, or four days per year per worker. Meanwhile, in schools, [studies have found](#) 'compelling evidence of increased student performance with increased ventilation rates' and that higher concentrations of CO<sup>2</sup> result in [poorer test scores](#).

To improve the quality of the air we breathe, we first need accurate information about IAQ. An IAQ monitor can provide detailed data about pollutants so that action can be taken to provide cleaner, healthier air.

Prioritizing IAQ is not just a good practice that will produce results in terms of greater productivity and happier building occupants. Increasingly, it also looks likely to become a necessity, as regulators turn their attention to indoor air.

## Cut sick leave



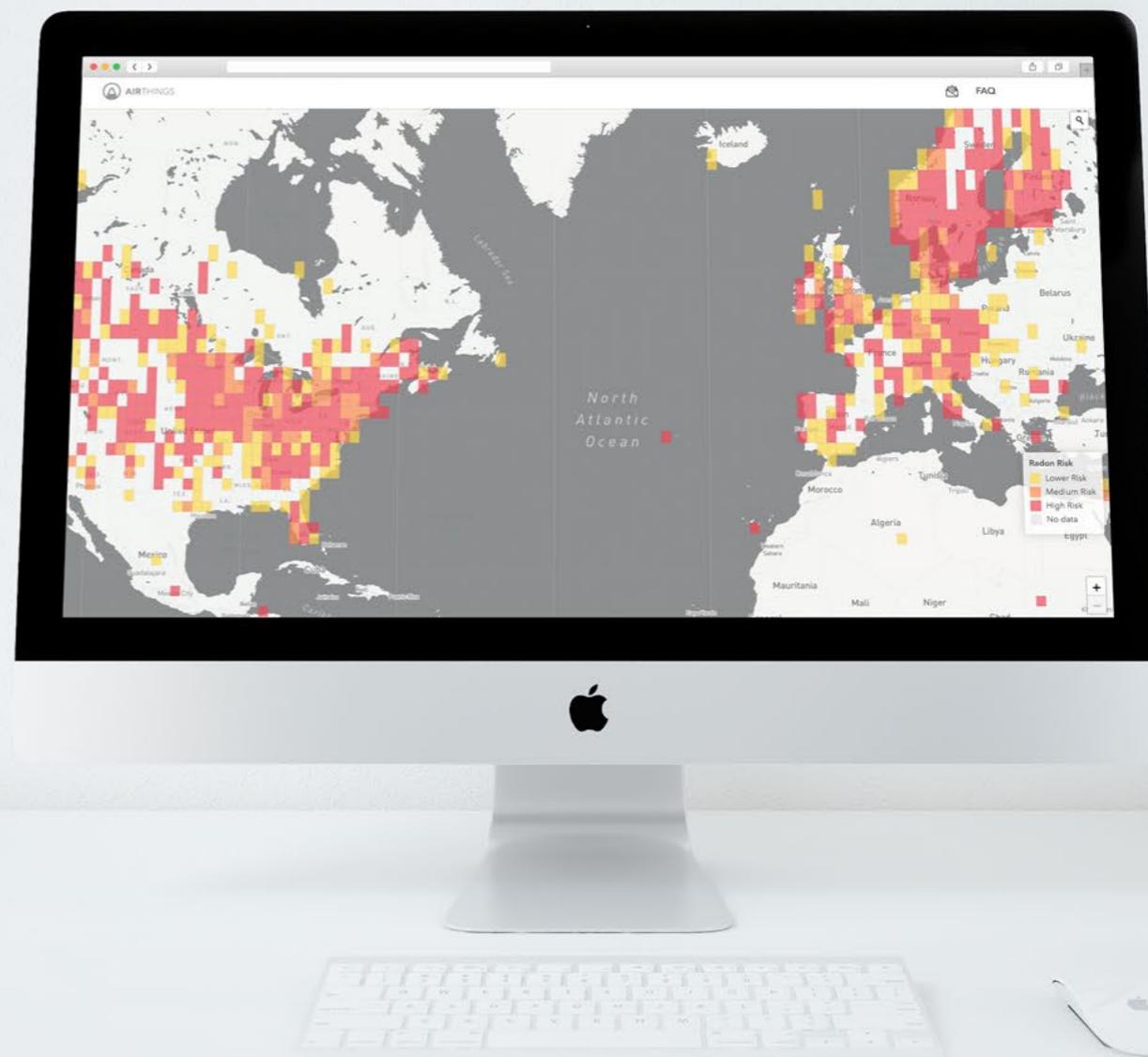
# Regulators and public bodies are on the IAQ case



Outdoor air has long been on the agenda of legislators in the [United States](#) and [Europe](#), as governments seek to enhance their green credentials and improve living conditions for their people. This focus is now shifting to IAQ, with a growing number of regulations on the statute books and more likely in the future.

One contaminant that is becoming more highly regulated, particularly in the United States, is radon. The legislation is implemented on a state-by-state basis and there are currently no federal laws that govern acceptable levels of the gas, though the EPA has issued guidelines.

The Indoor Radon Abatement Act (EPA 1988) established the goal of ensuring indoor air is as radon-free as ambient air outdoors. The EPA is required by law to conduct radon assessments where people live, work, and study, assess the implications for health, and determine methods for reducing or eliminating exposure to radon gas (SARA 1986). A federal program, the National Radon Action Plan, [is tasked with mitigating radon risk](#).





**In the US, real estate laws require homes to be inspected before they are sold and radon testing is frequently part of that process. This requires measuring levels of the gas for a minimum of 48 hours. Some states oblige schools to test for radon, maintain records of the results, and take action where high levels are found.**

Similar regulations are in place for issues like mold, ventilation, and combustion appliances through state building codes and laws covering public buildings.



The EU has also tightened up its radon rules recently. The Basic Safety Standards (BSS) directive on the gas was introduced last year, requiring member states to develop action plans and employers to make sure that staff are protected. Its aim is to ensure that indoor concentrations of radon remain below  $300 \text{ Bq/m}^3$ . The exact implementation of the directive is the responsibility of individual states, but it's clear that, for public bodies, employers and landlords, a requirement to monitor the gas more closely is the direction of travel.



While radon regulations are developing fast, some measures to curb indoor pollution have already bedded down and are starting to show results.

Internationally, and in 26 US states, smoking bans are regarded as a success story, delivering measurable benefits for public health. They are cited as an example of regulation having a positive impact and [used to support the case](#) for more active policy-making to improve the quality of indoor air.

In fact, the argument for more legislation governing IAQ is gaining pace. The WHO has issued

[in-depth guidelines](#) covering pollutants like carbon monoxide, radon, and VOCs. Significantly, the organization recommends:

***“Countries may wish to use the guidelines as a scientific basis for legally enforceable standards.”***

The European Commission’s Scientific Committee on Health and Environmental Risks (SCHER) is building a [case](#) for treating indoor air pollution similarly to outdoor air. Outdoor air pollution is targeted through various air quality directives in the EU and [in the UK](#),

local authorities are empowered to intervene either at the planning stage or by reducing existing threats.

Britain’s public health watchdog, the National Institute for Health and Care Excellence (NICE), is now consulting on a [range of guidelines](#) that cover indoor air quality.

The document is aimed at policymakers, as well as health professionals, planners, and the construction industry.



NICE wants local government to draft air quality strategies that specifically deal with indoor air and step up inspections to identify poor air conditions. They also want regulations updated to reflect the new WHO guidelines and a regime of enforcement to improve IAQ.

It's clear that policy-makers are under ever greater pressure to react to evidence that poor indoor air quality damages public health. Various national and international organizations are examining the issue closely, with a view to introducing new rules and legislation.

We know from other sectors, from fintech to genetics, that regulation often lags behind science. The scientific understanding of how indoor air quality impacts people is well established, and now public bodies and authorities are quickly catching up with plans for action. As a consequence, now is the ideal moment for organizations to get ahead of the regulators.

# Time to take the lead

**The most successful organizations don't just respond to new challenges when they arise. They anticipate change before it happens, adapt their priorities accordingly, and use the opportunity to improve their operations.**

By monitoring IAQ, owners and operators will have all the information needed to diminish any air quality threats in the building. High-quality sensors provide real-time information in a format that's easy to understand and they can be linked, for example, to ventilation systems, so that action to regulate IAQ can be taken automatically.

Facility managers are often asked to balance an ever-greater range of responsibilities while taking into account changing compliance rules and balancing tight budgets. Moreover, FMs are at the heart of how a building serves its occupants, but too frequently they're seen as the 'go-to' person when something goes wrong.

The installation of IAQ monitors provides information on factors that are proven to affect the productivity and happiness of building occupants. As a result, businesses can use this data to improve the bottom line, because their employees perform better, take less sick leave, and stay in their position longer.

Similarly, for schools and other educational establishments, there is clear evidence that better air quality produces better outcomes where young people are learning. Children's lungs are still developing, so they're particularly vulnerable to indoor air pollution. Students, teachers, and other staff will all appreciate a more comfortable environment as they go about their day.

Additionally, IAQ data can help stretch tight budgets by enabling better planning so that air quality systems are deployed in rooms with greater capacity at peak times. [Cognitive](#) scores can double in cleaner, better-ventilated classrooms, [while test scores are shown](#) to rise where students breathe higher quality air.

Meanwhile, for HVAC professionals, a focus on IAQ and the likelihood of regulation can provide a real point of difference. By integrating monitors with their ventilation system, customers will have insights that they can use to add value to their businesses and produce better results.





The conversation can be broadened out from the practicalities of an HVAC solution and energy efficiency, to the benefits of improving the work environment and future-proofing against new legislation.

[Modern IAQ monitors](#) are easy to install. They don't require a lengthy, disruptive process that involves ripping out walls and ceiling tiles or running lots of wires through

a building. The industry-leading sensors are battery-operated, wireless, and compact. They can be mounted on walls or ceilings and they work in harmony with existing HVAC systems and building automation systems (BAS). Buildings can have the technology they need to stay ahead of the curve, meaning that they will be up and running in no time.



Conclusion: Now is  
the time to get ahead  
of the regulators



Public health organizations like WHO, EPA, NICE and SCHER are scrutinizing the impact of indoor air pollution closely and providing an impetus for policymakers to develop regulations. To an extent, this process has already started, with a framework of rules emerging on radon, ventilation, and mold, as well as the implementation of widespread bans on smoking in public buildings.

These interventions are perceived as successful and, as health professionals and lobbyists advocate more legislation, it seems unlikely that governments and international bodies will not respond.

The scientific evidence that IAQ has a critical impact on public health is compelling. We're beginning to understand just how profoundly the air we breathe in our offices, schools, and colleges affects how we think, work, and learn.



**It's now the perfect time for organizations to make IAQ a priority in their buildings, not just to anticipate regulations, but because of the clear benefits that cleaner air has on people's productivity.**

There's a clear opportunity for businesses, schools and other institutions to implement improvements that make for healthier, happier environments, while future-proofing themselves against changes in the law.



# Takeaways





Public health organizations like WHO, EPA, NICE and SCHER are increasingly focusing on the issue of indoor air pollution, producing guidelines and recommendations for regulators and health professionals.



Regulations on IAQ are already increasing, with tighter building codes and laws forbidding smoking indoors. The smoking ban is seen as a precedent for policy-makers.



The significant body of outdoor air quality legislation, both national and international, is regarded as a template for interventions on indoor air quality (IAQ).



Now is the opportunity for organizations to seize the initiative and implement IAQ monitoring and improvement for better health, productivity and future-proofing

## Calculate your company savings when monitoring indoor air quality

How much money can your company save from having healthier indoor air?

How many employees do you have?

22

And what's the absence rate in office?  
The US average is 2%

10%

CALCULATE YOUR SAVINGS

# Find out what return on investment (ROI) would look like for your business with the ROI calculator.

CALCULATE YOUR ROI NOW