

A FACILITY MANAGER'S GUIDE

Boost your office's ROI and productivity with indoor air monitoring

Indoor air quality monitoring empowers you as a facility manager to use data to demonstrate an optimal indoor air environment or evidence work orders. You can quickly resolve office disputes, boost productivity, and increase ROI in your building.



Foreword



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As an office facility manager, successfully managing, installing, and updating the amenities in your building can pose a number of headaches. Often, you're asked to juggle an expanding range of responsibilities, while taking into account changing compliance rules and balancing ever-tighter budgets.

When you think about air quality control in your building, it probably conjures up endless debates about temperature, as workers complain "we're too hot" or "we're too cold." Yet, the [latest evidence](#) shows that indoor air quality, increasingly affects our health and determines how effectively we work.

Temperature is undoubtedly important, and indoor air quality monitoring is useful for evidencing an optimal indoor air environment, but it is part of a broader indoor air quality picture. indoor air quality is determined by the level of pollutants in the air we breathe, like radon, total VOCs (volatile organic compounds), and CO₂. Conditions like humidity and air pressure also play a role when it comes to our health and productivity.

When you discuss new equipment investment for your building, you'll be required to demonstrate a healthy return on investment (ROI), with the data to substantiate the figures. By monitoring indoor air quality, you gather detailed information about the air that employees breathe, providing evidence to implement changes that are proven to boost productivity.

The key is to evolve the conversation on managing your facility: from one that is building-led to one that is user-led. indoor air quality monitoring helps to create a better environment for the business by leveraging the air quality within your building -- workers are happier, think more clearly, and make better decisions.

This guide can help facility managers boost ROI and combined energy and colleague productivity in their buildings and increase the satisfaction of building users.

What is indoor air quality monitoring, and why does it matter?





The US government's Environmental Protection Agency (EPA) defines indoor air quality as "the quality of air in a home, school, office, or other building environment." According to the [EPA's research](#), concentrations of key pollutants are up to five times higher indoors than outdoors.

The best indoor air quality monitors gather information about these contaminants, as well as conditions like temperature, air pressure, and humidity that determine the quality of the air we breathe, which in turn affects how we feel and how well we work.

Substances like radon and VOCs have a pronounced impact on our health. Over the long-term, substances like radon have been named as the number one cause of lung cancer among non-smokers, and VOCs contribute to short-term issues like headache, inflammation of the eyes, nose and throat, and flare-ups of respiratory complaints.

Critically, [studies](#) show that good indoor air quality has a profound effect on performance among building users, boosting cognitive scores, and cutting absenteeism.

Becoming user-led rather than building-led



When you monitor indoor air quality, it can reveal a need for better ventilation in a building, which may pose an immediate problem for facility managers. The construction industry puts greater emphasis on energy efficiency these days and, as a result, modern buildings are increasingly air-tight. Potentially, there's a trade-off between energy costs and higher quality air.

Equally, property owners may be anxious that, if indoor air quality or radon monitoring uncovers a problem, they'll be held responsible for putting it right.

However, using tech with the right sensors and reporting tools also presents a significant opportunity to move away from thinking about the building and its requirements to thinking primarily about the users of the building. This type of investment offers the potential to increase productivity and ROI, make the environment in the property more appealing to tenants, and demonstrate the true value of facility managers.

Let's look in turn at each of these areas and how they can be improved by indoor air quality.



Boosting productivity

There is clear and compelling evidence that a healthy indoor environment can improve the performance of workers:



A study [co-written by the Harvard T.H. Chan School of Public Health](#) reveals that improved indoor environmental quality could boost decision making scores by 101%. It calculates that cognitive improvements from better quality air resulted in each employee generating on average an extra \$17,000 each year.



In 2018, the World Green Building Council published [a report](#) that shows a healthier work environment could cut sick leave by **58%**, or four days per year per worker.



In conjunction with a heating, ventilation, and air-conditioning (HVAC) system, indoor air quality and radon monitoring helps ensure that you have the optimum air conditions in your building.

Wireless technology means that there is no need for a time-consuming installation, or ripping up walls and ceiling tiles. The latest indoor air quality monitors can be up and running in hours. They offer long battery life, so they don't take up valuable power outlets. And they use

APIs, meaning that they can communicate wirelessly with other tech. Reporting and using the data they gather is as easy and seamless as possible.

The information generated by an indoor air quality monitor can be accessed remotely. It will provide genuine evidence to action work requests for HVAC or changes to your air quality regime. Data from the top sensors cover the following metrics.



Radon – a colorless, odorless radioactive gas that is emitted naturally when uranium breaks down in rock, soil, and water under our feet. It seeps into buildings through the foundations, and the gas is responsible for [13.4% of lung cancer deaths](#) in the US alone. If monitoring reveals high radon levels, the concentrations can be reduced by sealing cracks and ventilating the building properly.



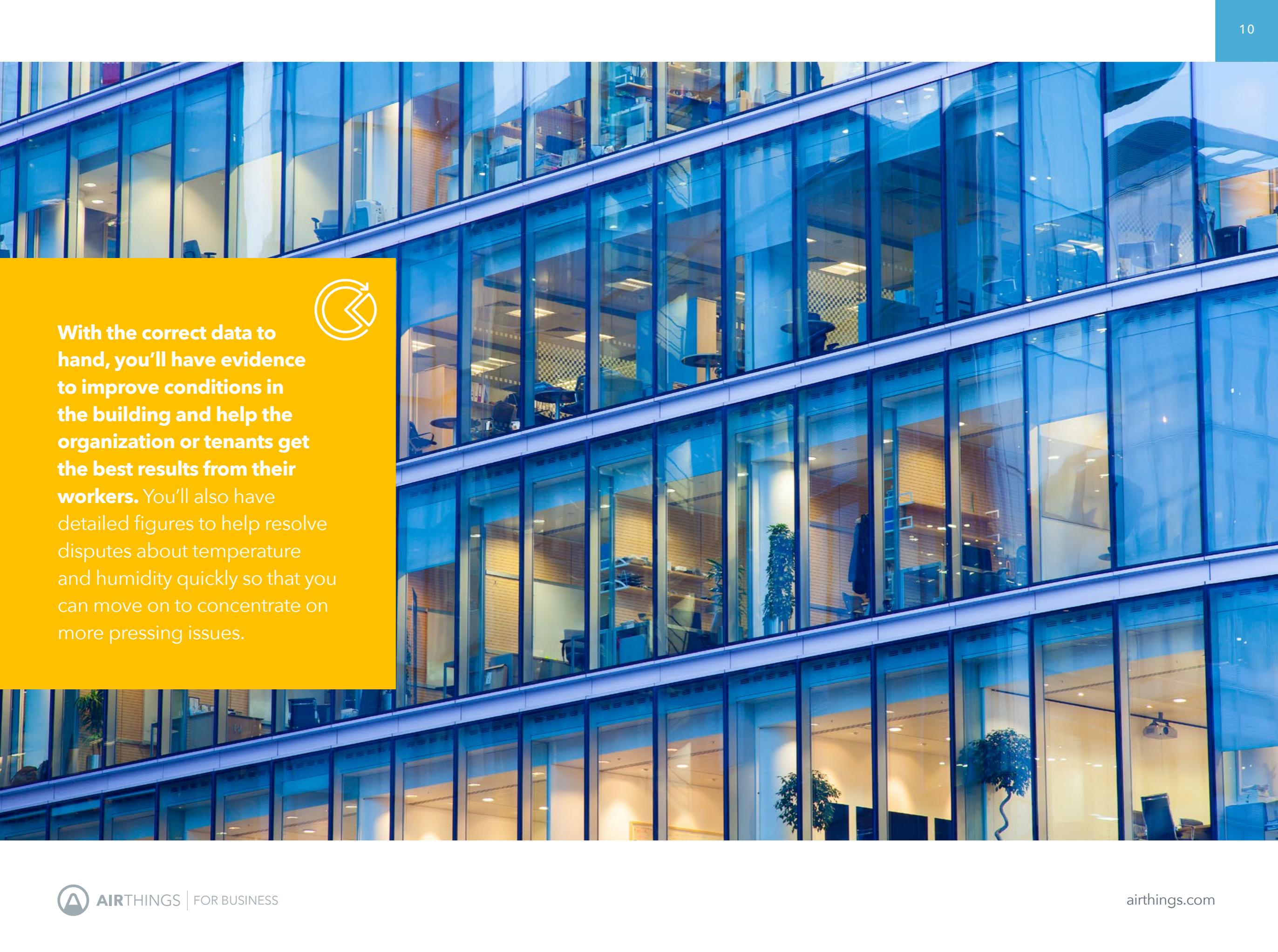
TVOCs – these substances exist in modern cleaning products, paints, solvents, carpets, and furniture. They contribute to long-term problems like cardiovascular diseases and lung cancer. They also cause [short-term issues](#), like headaches, inflammation of the nose, throat and eyes and flare ups of pneumonia or bronchitis. Such ailments cause absence from work or prevent employees from working at full capacity. They can be combated by changing to healthier products and by effective HVAC.



CO₂ – a major source of complaints of poor indoor air quality. [Normally, a CO₂ concentration less than 1,000ppm is considered satisfactory](#), but in crowded or badly ventilated rooms concentrations can reach 5,000ppm. When levels of CO₂ are high, it can result in drowsiness, lethargy, and poor decision making. Again, the solution is supplying more fresh air.

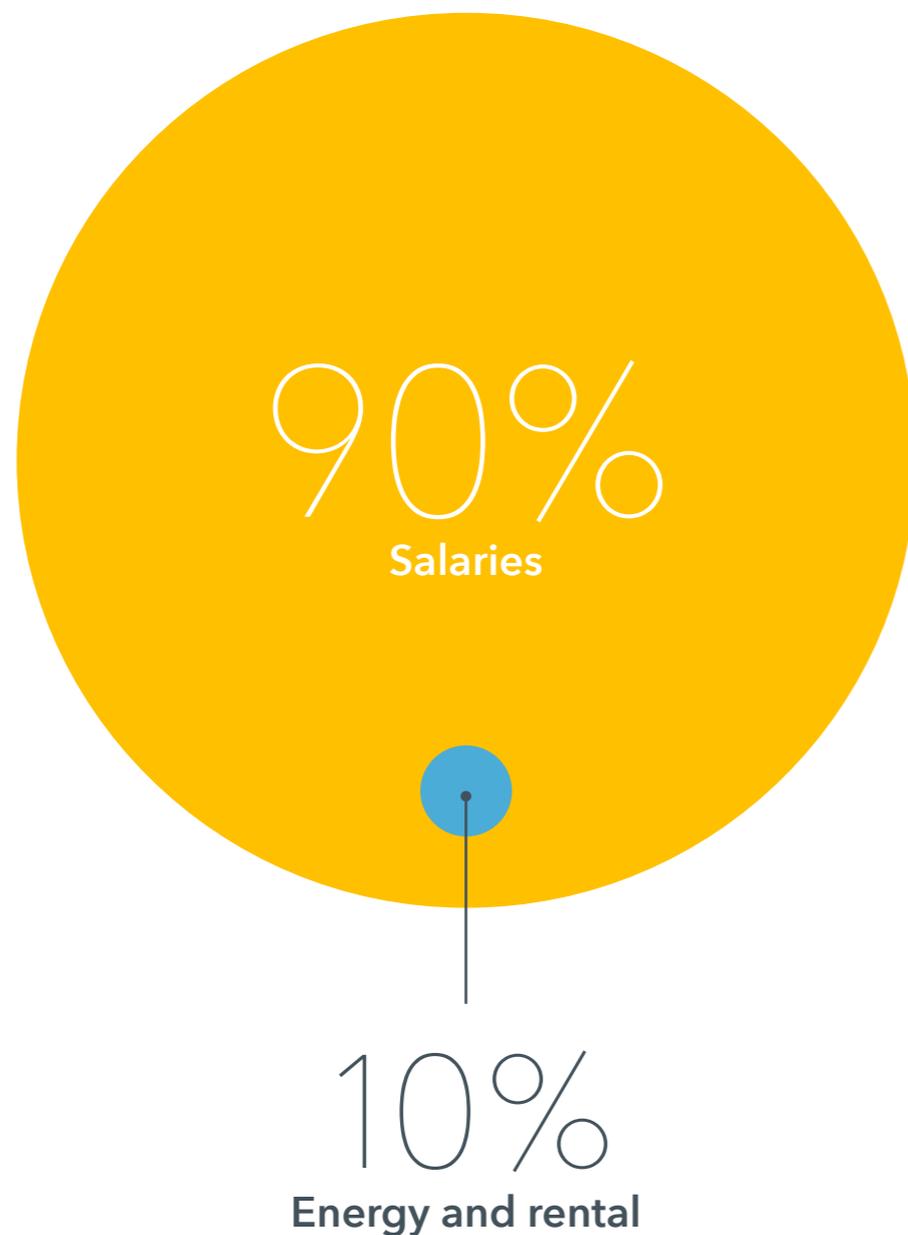


Humidity, temperature, and air pressure – these conditions affect how we feel and how we perform. They're linked to complaints like headaches and migraines, variations in blood pressure, and joint pain, which are likely to impact employees' productivity.



With the correct data to hand, you'll have evidence to improve conditions in the building and help the organization or tenants get the best results from their workers. You'll also have detailed figures to help resolve disputes about temperature and humidity quickly so that you can move on to concentrate on more pressing issues.

Business spend



When we consider HVAC in a building, it's easy to focus too closely on energy efficiency. The energy infrastructure company, JLL, [has conducted research](#) that shows a boost of 2% in energy efficiency delivers a saving of \$0.06 per square foot. A 2% improvement in productivity results in a saving of \$6 per square foot. Businesses spend around 90% of their running costs on salaries, while energy and rental costs total about 10%.

The logical conclusion is that allowing the wellbeing of users to lead how you manage your building, rather than concentrating solely on energy efficiency, will ultimately increase overall productivity. Workers are better at reasoning, understanding, and taking decisions when they breathe better air. They're happier too.

Indoor air quality monitoring can help get the most out of employees while optimizing spaces for visitors, students, and customers.

Maximizing ROI

The return on investment for any building is determined by the extra value generated by its people, energy usage, its facility manager, and other factors.

For contemporary workers, the environment and tech in their office environment matters. According to [a paper published by Dell and Intel](#), 44% of employees believe their workspace isn't smart enough, and 42% of millennials say they would consider quitting their job because the tech is not up to standard.

In 2018, a report by the World Green Building Council looked at the effects of a healthier workspace on levels of sick leave and staff turnover. [The study](#) shows that improved conditions result in 58% less absenteeism. The engineering firm Cundall's UK experienced a 27% reduction in staff turnover after implementing changes, including better air ventilation.



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All the evidence suggests that workers are happier, better motivated, and more productive when indoor air quality is better. The direct correlation with productivity shows a potential to generate extra revenue by optimizing indoor air quality.

In addition, focusing on ventilation doesn't necessarily mean sacrificing energy efficiency. With smart implementation, it's possible to run a system that operates only when it's needed, keeping costs to a minimum, maximizing ROI.



A more appealing, environment

We've seen already that workers put greater emphasis on the safety and comfort of their workplace. Modern businesses focus on their 'employee value proposition,' or the set of benefits that makes an organization a great place to work.

Good quality indoor air quality can be used toward achieving the [WELL Building Standard](#), the global benchmark that recognizes comfort and health in building standards.

By creating a healthier, more comfortable work environment, companies have another tool in their toolbox as they try to attract the very best talent to their workforce.





Showing the true value of the facility manager

As a facility manager, you're responsible for the management and maintenance of multiple systems and assets. You're at the heart of how your building serves all its users, but too often you may be viewed as the go-to person when things go wrong.

With cutting edge tech like indoor air quality monitors, there's verifiable proof of the value of your role, because you'll generate reports and actionable insights that form evidence to back up work orders. In turn, these improvements can boost productivity and ROI in your building.

It's difficult for facility managers to be as proactive as they would like, where time is taken up by reactive maintenance -- indoor air quality monitoring empowers proactive, user-led leadership. This initiative won't go unnoticed by building owners and building users, who will have a real chance to appreciate the importance of the facility manager's role in ensuring the smooth and profitable operation of the property.

Finding the ideal indoor air quality and radon solution





To maximize the productivity and ROI gain that indoor air quality monitoring makes possible, it is necessary to find a solution with the right attributes.

There may be options that offer some form of indoor air quality monitoring, but, for the most effective results, you'll want to choose a system that measures levels of radon. Industry-leading options will offer remote monitoring, through accessible reporting tools. Make sure that your monitor has a comprehensive dashboard that presents information in a user-friendly format.

Of course, the quality of the sensors is also key.

You will want powerful monitors that can identify small quantities of total VOCs that are critical to the quality of the air we breathe.

These days, it's also vitally important that your tech can talk to other monitors and that it integrates with your existing IT systems. Cutting edge monitors use sophisticated code called APIs to make it easier for monitors to communicate with the cloud and with each other.

That means that the sensors work in harmony with other equipment and information is ready and available when you need it.

Introducing Airthing for Business



The Airthings for Business is the first complete system for remote monitoring of radon levels and indoor air quality. Comprising the Airthings Wave Plus and Airthings Hub, this solution offers the Airthings Dashboard and an API option so that you have all the information you need in a format you can use quickly and conveniently.

The system allows facility managers, employers, and key decision-makers to improve wellbeing and increase productivity in their buildings, by monitoring serious indoor air pollutants.

Wave Plus sensors connect wirelessly and use powerful batteries so that they can be installed easily with minimum disruption and have a low-energy requirement. They're specifically designed to be used in every type of indoor populated space.

The Airthings Dashboard provides information on indoor air quality in an insightful format, interpreting the key metrics and offering tips on reducing indoor air hazards, optimizing ventilation, and saving energy. Whatever your specific needs, it is easy to view, compare, and export data from the Dashboard.





The Airthings for Business Hub connects up to 30 battery-operated monitors through Airthings SmartLink, a long-range wireless data extraction technology that operates using very little power. This piece of kit allows monitors to be distributed throughout a large building so that indoor air quality data is available anytime and anywhere.

The Healthy Business Solution can be used in every size and shape of building, bringing sustainability and energy efficiency to any project at a low cost.

By installing the right indoor air quality monitoring system for your building, you've got the tools to improve indoor air quality and increase the health and wellbeing of all building users. The sensors will provide invaluable information that you can turn into insights and action.

The evidence shows that better air in your building makes for happier, healthier employees, who think more clearly and work more effectively to generate more income for their employers. Indoor air quality gives facility managers an opportunity to boost productivity and ROI in their buildings, to the benefit of tenants and owners alike.

Takeaways





By monitoring indoor air quality, facility managers can use detailed reports about the air that employees breathe in their building, providing evidence to raise work orders or prove that there is an optimal environment.



The best indoor air quality monitors can gather information about pollutants like radon, CO₂, TVOCs, temperature, humidity, and pressure that damage building users' health and affect how they perform.



The latest research suggests that improving indoor air quality results in better decision making and a boost in productivity worth \$17,000 per employee per year.



Businesses spend up to 90% of their running costs on people and only 10% on energy and rents. As a result, investing in improved productivity offers a higher ROI than focusing on energy efficiency.



Better indoor air quality in a building makes it an appealing environment for current and potential employees (increasing talent attraction and retention).



Indoor air quality management highlights the difference that a good facility manager can make to profitability by taking decisions that are user-led rather than building-led.



The ideal indoor air quality solution will feature powerful sensors, easy installation, and integration via open API.

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 ROI would look like for your business with the ROI calculator.

CALCULATE YOUR ROI NOW