

Case study

# Proptech Bergen: How indoor air quality data made an old commercial building into an energy-efficient 'living lab'

A 'Proptech' project in Bergen, Norway, showed that creating a 'smart building' needn't be a complex, unattainable idea if you're prepared to start small, scale easy, and think big.

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**PROPTech BERGEN**







When a four thousand square meter commercial building was turned into 'Proptech Bergen', most of the workspace had been unoccupied for five years and much of the property's technical equipment was old, outdated, or broken. Yet, this 'modern office community' is now a magnet for new tenants and a model for other building owners.

The property's conversion into a 'living lab' didn't start with expensive refurbishment or laying miles of cable. Instead, Proptech Bergen used indoor air quality monitors to gather data that showed how existing systems could be harnessed, improved, or upgraded.

**The result is a 'smart building' and real-estate tech hub that the media have described as Norway's answer to Silicon Valley.**



# The initial challenges



Proptech Bergen's innovative approach was first put to the test tackling the most basic problem: how to get into the building. There was only one surviving key for the property and a new security system was expected to cost around \$44,000.

Rather than pay this prohibitive bill, the scheme's leaders, Energy Control consultants, hooked up a \$124 contact box to a mobile app to give tenants a convenient way to access their offices.

**"I think that was the start for us – how to open the door," says Tommy Hagenes, an automation expert who headed the project. "We thought, okay, let's do this really differently."**

Bad ventilation in the building potentially posed an even more serious problem for the team. If they were going to take the typical approach, they would need to hire an HVAC specialist to check valves and vents on the equipment and experiment with different air pressures. This laborious manual work could cost more than \$20,000, just to find out what needed to be repaired or replaced.

Instead, Proptech Bergen installed [Airthings for Business](#) indoor air quality monitors in every room, then started and stopped the HVAC system to gain vital air quality data and form a picture of what was going wrong. It took only half a day to identify locations in the building that were too hot, too cold, or too high in carbon dioxide and volatile organic compounds (VOCs) despite the ventilation system being activated.

In particular, the data revealed that old ventilation valves were not functioning properly. This information enabled Proptech Bergen to arrange the necessary repairs and provide tenants with ideal working conditions right from the get-go.



# Cutting energy costs



After the building's air quality improved, the focus at Proptech Bergen switched to energy costs. The Airthings monitors revealed that temperatures in the workspace were too high, particularly at night-time and during the weekends when the property was not being used.

The team was able to link these cutting-edge monitors to the existing building management system (BMS), despite the older tech dating from the 1970s or 80s. By integrating the old with the new, it was possible to automate day, night, and weekend HVAC modes to reduce temperatures and save money.

The project's willingness to combine both old and new technology to create a 'smart building' was a perfect illustration of how Airthings for Business can integrate with and elevate legacy infrastructure.

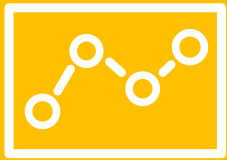
"We use sensors and data to drive decisions rather than starting by ripping out the old systems," Tommy Hagenes explains. "It means that in many cases we can use the existing infrastructure to control the building rather than installing lots of new equipment and cabling. You could say that we've reversed the conventional process for doing things."

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**Proptech Bergen slashed energy costs by 20%, just by dropping the night-time and weekend temperatures by 4 degrees.**



# Attracting new tenants





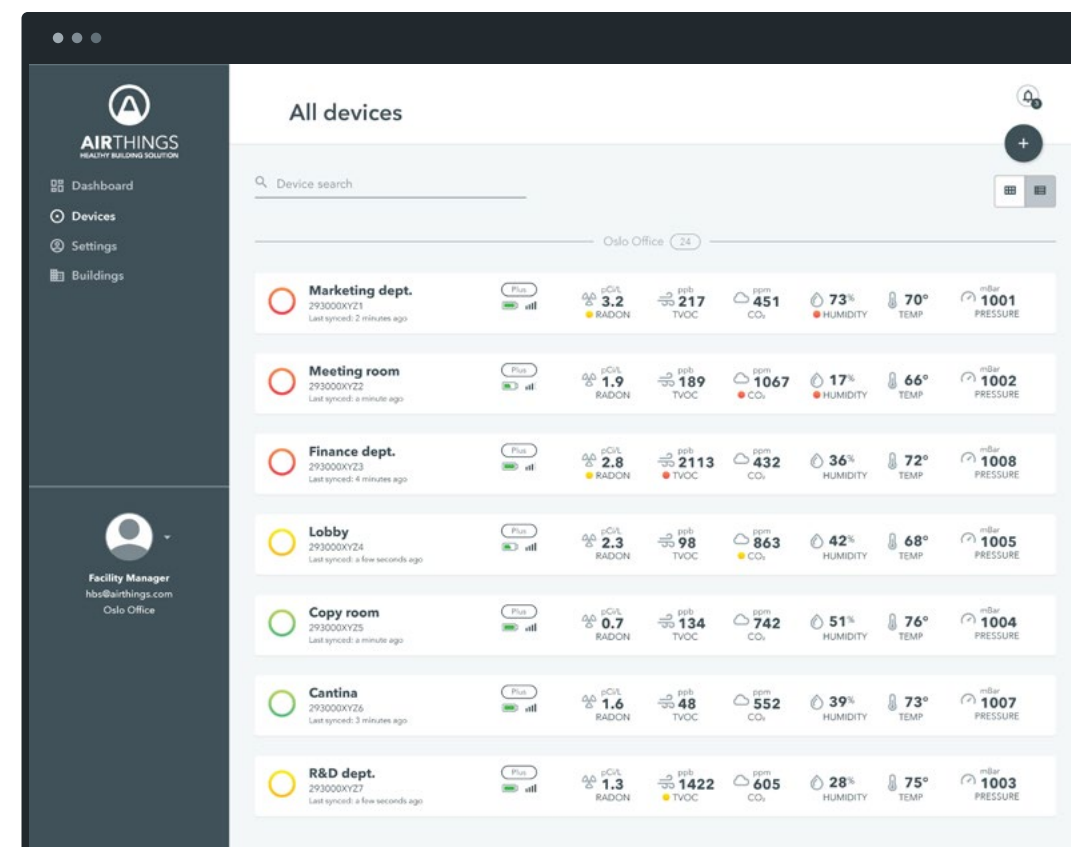
In a workspace that acts as a 'living lab', clients want the best environment, but they also want the ability to control conditions by integrating their own tech.

For that reason, Proptech Bergen installed 250 indoor air quality monitors and provided open-source APIs (application program interfaces) allowing tenants to tap into the system and link their products to the Airthings for Business system.

Within six months, the building had attracted an impressive range of tenants, both start-ups and traditional businesses, mainly operating in the real estate tech sector. The pioneering tech giant, Cisco, is a tenant and the company has developed software that gives an easy overview of all the sensors located in a particular room.

In addition to Airthings and Energy Control, the workspace houses successful companies including FIG, Disruptive Technologies, KAHRS Eiendom, Canes, Mestergruppen, Pretre, Cisco, IV Produkter, and Infracity.

Meanwhile, other major commercial real-estate owners are emulating the Proptech Bergen model with their own 'smart building' project, in a property three times bigger. The 'scalable' nature of the tech means it's suitable for buildings both large and small. The indoor air quality monitors operate wirelessly and 250 sensors require only two hubs to work effectively.





# Into the future



The next stage of the Proptech Bergen project is already being implemented, with plans in place to link the HVAC system to occupancy, ensuring it runs even more efficiently. Indoor air quality monitors provide data on how the building is being used, by measuring changes in levels of carbon dioxide.

While the clever use of sensors has already slashed energy costs, more savings can be achieved by triggering HVAC when the first person arrives in the morning, or, alternatively, if radon levels rise too high. Automating the lights by linking indoor air quality monitors to the existing BMS will result in similar efficiencies.

Tommy Hagenes believes Proptech Bergen has adopted a revolutionary approach to creating state-of-the-art buildings. The project is truly a 'living lab', exploring the possibilities of harnessing indoor air quality data and integrating it with the ecosystem of the building.

"We're doing things the opposite way around," Tommy explains. "First we install the sensors, then we get some tenants in, and use the data to make the right choices when we're upgrading equipment. We don't want to change something when it's working."

**"A building is like a big jigsaw puzzle. We know Airthings is just a small part of the puzzle. That's why it's important for us to be the right choice – the right shape – so we really fit into the puzzle."**



# Key facts



Proptech Bergen uses indoor air quality monitors to gather data that shows how existing systems can be improved or upgraded.



The monitors saved over \$20,000 and two weeks' work, by quickly and easily identifying the problems with an existing HVAC system.



Proptech Bergen slashed energy costs by 20% by identifying and addressing the fact that the building was too hot at nights and weekends.



Cutting-edge Airthings for Business monitors were integrated with a decades-old business management system (BMS) to deliver results.



The project's ethos is to use monitors and data to pinpoint the changes that are necessary, rather than changing things first and seeing how that works.



The new solution means the building is available 24/7, with conditions controlled according to real-time usage, not a predetermined schedule.



Sensor data is used by the facility management companies, to improve value and reduce the costs of cleaning and maintenance.



Proptech Bergen is now a 'living lab' that explores the possibilities of harnessing indoor air quality and integrating it with the ecosystem of a building.

Want to know how indoor air quality monitors  
can transform your building?

**Contact Airthings for Business today.**

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