

# 4D

## monitoring

Smart, Efficient, Sustainable



**Affordable retro-fit Smart Building Solutions, that save time, reduce costs, improve tenant well-being, and protect the value of your assets and properties**



## About Us

“Our team have decades of combined experience in property management, technology and HVAC system engineering, giving us the unique expertise we need to understand your needs”



### Experts you can trust

4D Monitoring are a leading IoT (Internet of things) provider, that work with landlords, property managers, service providers, and tenants to help them better understand their properties through the use of data.

### Proven Success

We have helped all of our clients reduce energy consumption in their buildings with an average reduction of 30% and in some cases as much as 50%.

### Affordable Solutions

Our aim is to make technology affordable for every building, not just large office buildings in London. We make sure our solutions are as competitive and accessible as possible.



**Lambert  
Smith  
Hampton**

“We are incredibly proud of the energy reductions and monetary savings we secured for our client and occupiers”

Matthew Walker

National Head of Facilities Management - Lambert Smith Hampton

“Every modern FM should use 4D Monitoring as part of their tool kit”

Mark Simpson

Senior Regional Facilities Manager - BNP Paribas



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# Building Performance Management

Effective management of building performance, often termed as 'Optimisation', is essential for both sustainability and enhancing property value, yet it frequently goes unnoticed. Often even the most energy efficient buildings have been poorly commissioned or maintained resulting in unnecessary energy usage.

Leveraging the Internet of Things (IoT) offers an affordable and efficient method to evaluate and enhance building performance. This involves keeping an eye on key HVAC equipment's capacity and operational durations, ensuring they're synchronised with the building's usage and needs.

Our comprehensive core plant monitoring setup includes temperature and pressure sensors to accurately measure the operation and performance of key energy-consuming equipment, such as boilers, chillers, air handling units, and large VRV systems, ensuring optimal efficiency.

Utilising remote monitoring, you and your HVAC service provider can diagnose issues without needing to attend site, as well as monitor conditions in the building to help resolve any ongoing disputes for example over office temperatures. This will help reduce the number of reactive call outs and maintenance visits that are required for your properties.

### Key Benefits

- Reduce energy spend by up to 50%
- Protect against critical plant failure by monitoring condition and implementing alerts
- Save time and reduce costs by reducing the number of call-outs and maintenance visits
- Drive more sustainable behaviour



# Air Quality & Environment Monitoring



Many recognise the health risks of outdoor air pollution, but indoor air can be equally or more polluted. Closed spaces often suffer from inadequate ventilation, causing a rise in CO<sub>2</sub> and other contaminants. Some air conditioners inadequately filter outdoor pollutants, leading to indoor air that's 2-5 times more polluted than outdoor settings.

Poor indoor air quality impacts occupant health, productivity, and cognitive function. For instance, a study from the Technical University of Denmark highlighted a 6-9% drop in office performance due to bad air quality, with increased reports of symptoms like headaches. Another study from Environmental Health Perspectives noted that green building strategies that reduce volatile organic compounds (VOC) in the air can boost cognitive function by 61%. Add optimal ventilation, and that boost can reach 101%.

Businesses now recognise the need for quality air management in providing top-tier work environments for their employees.

For landlords, monitoring air quality is crucial. High-quality indoor environments attract and retain top tenants. Furthermore, in an era of widespread environmental monitoring devices, it's vital for landlords to consistently ensure and demonstrate low pollutant levels, not just during design but operationally.

### Key Benefits

- Ensure well-being to attract and retain tenants
- Support energy reduction through understanding ventilation requirements
- Produce personalised air quality reports to share with tenants and clients
- Quickly diagnose and resolve issues with temperatures



# Space Utilisation & Desk Occupancy Monitoring

Space optimisation is the process of ensuring that the available space in your property is being used in the most effective way possible.

Many landlords and occupiers are now realising that with flexible working they are not utilising space in the same way, and with requirements to improve amenity to attract employees into office environments, its important to know where changes and improvements can be made.

Measuring which areas are occupied, at what times of day, and for how long is a good way to get a better understanding of how space is used.

We can provide footfall monitoring, desk occupancy sensors, and a range of different utilisation systems that will help you get the best possible data to aid in better understanding your building or your workplace in order to improve it for occupiers, tenants, and employees.

Occupancy and utilisation data can also be used to help determine where additional cost savings can be made on energy usage. Often buildings are heated and cooled late into the evenings despite only a few areas of the building being occupied. By understanding which areas are used and when we can target HVAC services to only serve those areas, reducing the overall consumption in the building.

### Key Benefits

- Lower costs by re-purposing under utilised space
- Improve Health & Safety by ensuring compliance with maximum occupancy levels
- Improve occupier experience
- Support energy reduction by reducing HVAC services to unoccupied areas





# Other Applications



### Flood & Leak Detection

Install our reliable leak detection sensors to promptly detect moisture and trigger alerts, enabling you to quickly react and mitigate potentially disastrous situations, preventing extensive damage.



### Space Temperature Monitoring

Utilise our discreet, unobtrusive temperature sensors in occupant areas to continually monitor comfort levels. This data-driven approach helps reduce unnecessary call-outs and effectively resolve temperature-related disputes.



### Legionella Risk Mitigation

Implement our pipe temperature sensors to consistently monitor the temperature of water supplies, tank rooms, and outlets. This advanced approach ensures protection against legionella and significantly reduces the need for regular site visits.



### Power Monitoring

CT sensors can be fitted in distribution boards to accurately measure power consumption at a granular level allowing you to identify and target areas and equipment that are over consuming.

# Our Unique Web Platform

“Our web accessible portal is easy to use on your desktop or your mobile phone”



## Key Features:

### Live Data Feeds

This intuitive and powerful analytics tool will allow you to quickly navigate live telemetry and historical data for every single sensor, allowing you to track detailed performance and diagnose any issues.

Formatted to work on both desktop and mobile this will allow managers and engineers to gain full insight over the building from anywhere in the world.

### Floorplans

Use our floorplan tool to help visualise live data within your spaces. Our floorplans can be used to understand current temperature and air quality readings, which areas are occupied or in use, as well as traffic in and out of areas and bathrooms.

Floorplans can be shared with occupiers, shown on live screens within the building, or embedded into your occupier app.

### Rules & Alarms

Gain peace of mind from any critical issues or failures within your building. Our rules and alarm system will allow you to set up and trigger notifications to instantly alert you should any type of issue occur. These alerts might include flood notifications, temperatures exceeding limits, plant failure, or even areas becoming over occupied, the possibilities are near endless.

### Reporting

Generate automated reports on building performance, air quality and footfall to share with tenants, clients or other stakeholders.





# How it Works



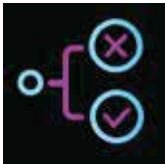
## 1. Installation

Our equipment operates independently of your existing building systems and network so it can be installed within a day. Meaning a much faster return on investment.



## 2. Assessment

Once our equipment has been installed one of our experts will monitor the building performance using our bespoke data platform and create some recommendations about adjustments and policies that would enable your building to operate more efficiently. We then apply the policies we have agreed with you as rules within our web app and provide you access to login and view the data and performance of the property at any time.



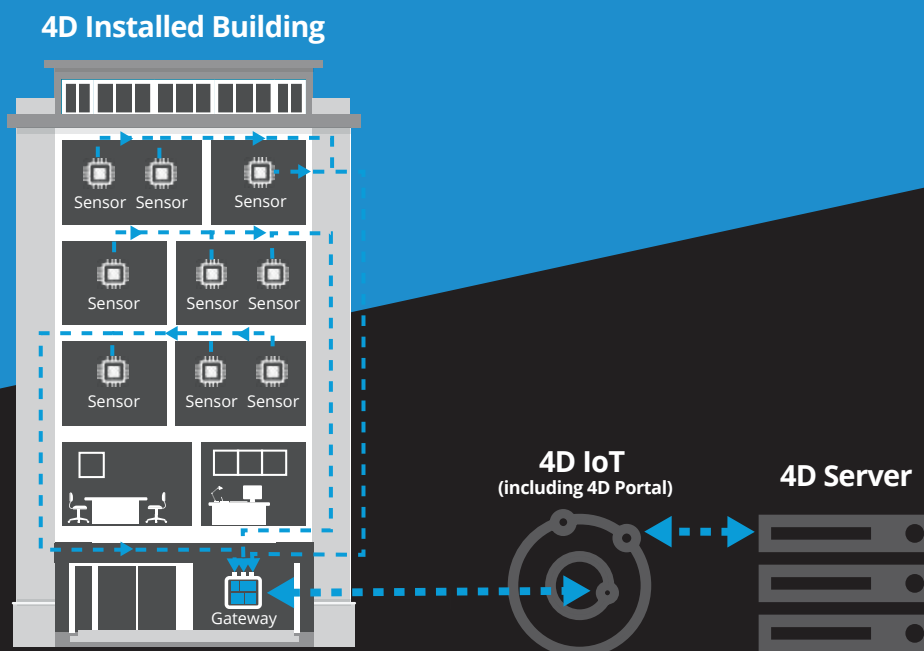
## 3. Action & Automation

As soon as the building begins to fall out of the optimal operating parameters the system will immediately alert and notify you and any other stakeholders involved to ensure that rectification can happen immediately. You can also login to view any current issues across your single building or entire property portfolio.



## 4. Monitoring

Our experts will continue to provide periodic reports to ensure that the building continues to operate effectively and to ensure that the rules and parameters meet up to the current needs of the property.





# Case Study: The Spirella Building

The Spirella Building, a former corset factory, designed by Cecil Horace Hignett, was built more than 100 years ago in 1912, and refurbished in 1996 from derelict condition into a vibrant business centre. When you use the term 'smart building' it's perhaps not the sort of building that comes to mind, however utilising our retrofit smart building technology, we have been able to turn it into just that, and in the process helped enable a £100k year on year saving in energy.

The building was equipped with IoT sensors to measure the internal room temperatures, as well as plant monitoring sensors that would monitor the performance of the buildings HVAC systems, including the boilers, hot water systems and air handling units. The building was also equipped with basic occupancy monitoring sensors that would allow for a better understanding of the buildings real-world usage.

Using the data gathered from the sensors and our analytics package, the engineering team were able to reduce the operation of the HVAC systems to match occupancy requirements and also to diagnose some long-term issues with the aging building management system that would otherwise have been missed.

Utilising the rules and alerts engine the maintenance team were able to stay on top of the optimised operation of the equipment and every time the energy consumption reduced to a staggering 60% (year-on-year performance for July), predicting savings for the year of approximately £100,000.

This collaboration between 4D monitoring, Savills property management, and their service partner Cambridge Maintenance Services, has demonstrated the potential of IoT technology to improve sustainability in older buildings, and has helped to improve not just the energy efficiency, but also the quality of the building environment for it's tenants.

**Grade II Listed  
Building**

**Energy Reduction  
40%**

**Annual Saving  
£100,000**

**ROI  
<1 Month**

**Start your journey towards a  
smarter, more sustainable  
and more efficient building**



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