



Background

BuiltSpace Technologies creates digital versions of facilities that enable managers to measure a building's operational performance to improve functionality and energy efficiency by collecting and organizing data from equipment and people's activities in real-time, across building ecosystems down to an individual asset. To do so, BuiltSpace first needs a greater understanding of their clients' critical systems (including HVAC) in order to glean actionable data to help them become more efficient.

Some of the challenges that BuiltSpace encounters is that many of their clients operate older buildings and systems spread across wide areas with extreme environmental and temperature fluctuations. They realized that in order to measure the functionality level and fault potential of the motors utilized by their critical operations systems, they required a solution that provided remote monitoring capabilities. ADI OtoSense™ Smart Motor Sensor was the ideal solution as SMS produced continuous, real-time motor health monitoring, and actionable insights which enabled BuiltSpace to deliver a cost-effective, real-time solution that empowered building owners and property managers to adhere to strict regulations around sustainability and efficiency, potentially saving clients hundreds of thousands of dollars on machinery replacement and operational costs.

At a glance

GOAL

Proactively monitor a building's critical systems motors to enhance safety, efficiency and profitability. Ultimately, this increased visibility of systems operation will help assure tenants that the premises meet ventilation standards for COVID regulations.

CHALLENGES

- Large, old building with diverse footprints, aging equipment—a major challenge since sound & vibration are key indicators of wear/faults.
- Property managers and staff may not have access to equipment in tough-to-reach locations in order to detect minute issues with machines.
- Monitor motors, pumps and fans not only for wear but for operational efficiency.
- Additional regulations in a post-covid world require equipment monitoring to achieve a higher level of transparency to satisfy occupancy requirements.

APPLICATION

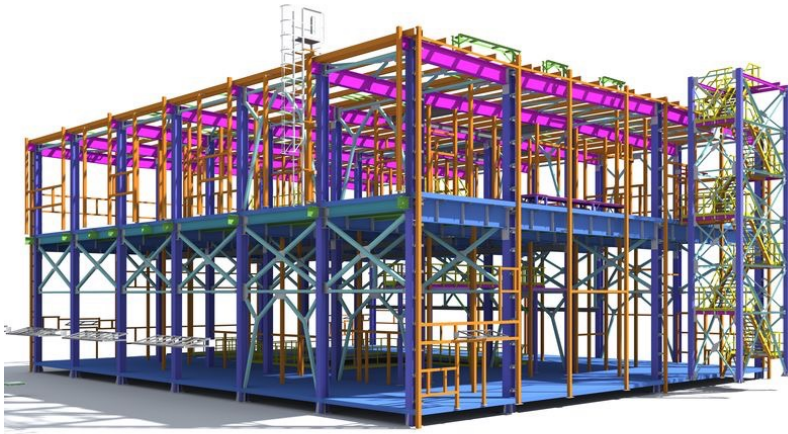
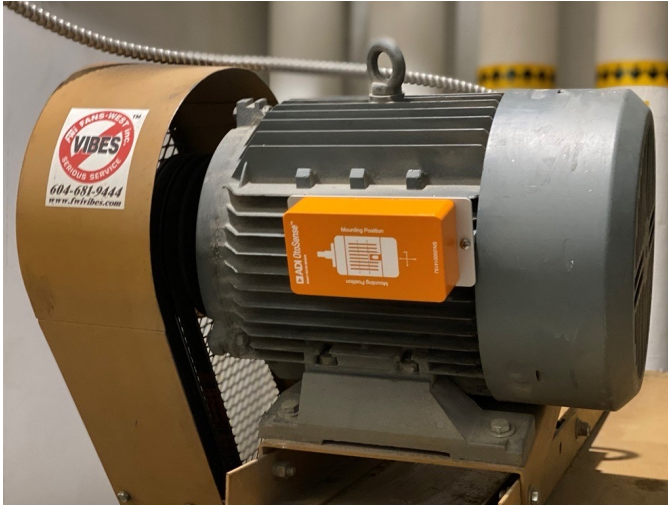
OtoSense SMS, proactive, predictive maintenance from continuous monitoring of ventilation systems.

RESULTS

- Improved operational reliability (found one motor needlessly running 24 hours at 1800 rpms!)
- Optimized allocation of maintenance resources
- Decreased unplanned maintenance
- Reduced costly downtime

OtoSense Smart Motor Sensor Areas of Use in Smart Buildings

OtoSense SMS provides an unprecedented predictive maintenance solution for commercial, retail and residential buildings with enhanced cost savings through in-depth motor health analysis. OtoSense SMS does not replace domain experts, rather it leverages their years of expertise and insight into mechanical motors to assist OtoSense in recognizing problems early on, enhancing motor efficiency and productivity and positively impacting a company's bottom line.



Benefits of ADI OtoSense Smart Motor Sensing:

1. Advanced diagnostics for prioritized action items

- Electrical and mechanical faults are diagnosed
- Level of severity helps prioritize required maintenance
- Recommendation on required actions

2. Sensing technologies for high quality, data analysis

- Multi-axis, wide bandwidth vibration sensors
- Magnetic field sensors monitor electrical health
- Temperature sensors monitor ambient and motor skin temperature

3. Machine learning creates motor models during operation

- Combines and interprets high quality, sensing data for higher reliability diagnostics
- Automated model creation agnostic to motor brand
- Customized model learns motor operation and interaction with load

Trusted by experts

Building efficiency into every building



Rick Rolston
President and Founder
BuiltSpace Technologies

“ Most predictive analytics solutions in the facilities industry depend on integration with building automation systems. OtoSense let's building owners inexpensively remotely monitor critical motors without expensive wiring & system integration, and often when no BAS exists.”

OtoSense Smart Motor Sensor reduces overall costs:

- Reduces unforeseen downtimes and avoids catastrophic failures
- Extends period between overhauls
- Reduces route-based activities & optimizes maintenance resource allocation
- Manages spare parts and stock more efficiently
- Increases lifetime of your equipment
- Optimizes motor efficiency
- Improves OEE (Overall Equipment Efficiency)

\$30k – \$50k/hr

Typical cost of unplanned downtime in an industrial setting

5-10%

Reduction in overall maintenance costs

71%

of organizations don't know when assets should be scheduled for maintenance

75%

of organizations don't know when assets should be replaced

80%

reduction in unplanned downtime with Smart Motor Sensor predictive maintenance

OtoSense Smart Motor Sensor Advantages:



Single platform monitors all the main assets of the power plant.



Sample signals at 6.2 kHz every 20 minutes that enables and covers several mechanical and electrical faults with high reliability.



Learns over time, detects and tags anomalies leading the path to a more predictive maintenance.



Monitors mechanical and electrical signals and enables you to detect mechanical and electrical faults.

ADI OtoSense™

SMART MOTOR SENSOR

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To learn how

ADI OtoSense Smart Motor Sensor can improve your productivity and cost effectiveness, visit:

otosense.analog.com/predictive-maintenance