



PROJECT AT A GLANCE

Location

Cambridge, Massachusetts

Facility

Research Laboratory

Monitored Systems

Central and zone ventilation system

RESULTS

\$286,000 in validated annual savings

\$50,000 in utility incentives

Improvement opportunities identified and implemented, including:

- 84 VAV boxes re-commissioned
- 52 VAV box reheat valves replaced
- 12 VAV box actuators replaced
- Multiple high-impact control adjustments implemented

Enabling Data-Driven Commissioning and Measurable Energy Savings

Clockworks™ building analytics implemented in large research laboratory enables energy cost savings and utility program incentives.

About the Laboratory

A 450,000 sq. ft. research laboratory implemented KGS Buildings' flagship software, Clockworks, for automated building diagnostics. The five-year-old facility was equipped with state-of-the-art energy efficient HVAC systems, including 10 ventilation units with capacity exceeding 50,000 CFM and several hundred variable air volume (VAV) boxes to serve laboratory, office and educational spaces.

Identifying and Prioritizing High-Impact Maintenance Opportunities

Using Clockworks, the laboratory was able to identify several major problems, including leaking and malfunctioning cooling and heating coil valves in three air handlers, and improper operation of over 200 VAV boxes.

Based on the insights Clockworks provided, the facility's operations team was able to quickly identify and schedule repairs, which Clockworks prioritized as having the highest impact on ROI.

750,000

ANALYZED CFM CAPACITY

1,000+

VAV BOXES MONITORED

450,000

SQ. FT. FACILITY

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The Results

Since implementing Clockworks, the laboratory now realizes **\$286,000 in annual energy cost savings**, resulting in a **\$50,000 incentive** through their utility energy efficiency program.

Specifically, Clockworks helps them to address:

Simultaneous Heating and Cooling

Clockworks identified a large air handler with a leaking cooling valve that was costing them up to **\$2,200/week** during the heating season. Clockworks pinpointed that this was a result of simultaneous heating and cooling of air supplied to the building. They prioritized the repair of air handlers, resulting in an **annual savings of \$61,400**.

Leaking Preheating Coil Valve in Air Handler

Clockworks identified a preheating coil valve that was causing simultaneous heating and cooling. Using Clockworks' insights, they focused their maintenance efforts on fixing the overridden valve and realized an **annual savings of \$137,000**.

Reduced Heating Load Across VAV System

Clockworks discovered that nearly 200 of the building's terminal unit reheat valves were leaking. Using Clockworks, they quickly uncovered the root cause: corroded valves caused by untreated hot water and failed actuators. This resulted in an **annual savings of \$87,600**.

An Always-On Approach to Building Analytics

With Clockworks always on, detecting and prioritizing faults, the laboratory can quickly see the impact that issues such as wasteful leaking valves have on their bottom line. Now, rather than relying on hot/cold calls to identify problems, the lab uses Clockworks to automatically find, prioritize and measure the success of repairs.

Using Clockworks, the laboratory can better identify operational inefficiencies, energy waste, maintenance priorities and comfort levels so they can direct their efforts toward the highest-impact improvements.

A decorative graphic at the bottom of the page consisting of a series of thin, grey, vertical lines of varying heights and widths, resembling a stylized skyline or a data visualization. A red line is overlaid on the grey lines, creating a jagged, step-like pattern.

About KGS Buildings

KGS Buildings provides state-of-the-art building performance management software for facility managers, engineers, and service providers. KGS's flagship software, Clockworks, provides automated diagnostics that reveal prioritized and actionable insights to improve facility performance and reduce costs, allowing teams to focus their time and resources on achieving the most impact. Using rich data and analytics, we help top-notch facilities teams stay on top by providing instant visibility into the highest-priority issues impacting their facilities every day.