

case study



Now on exhibit at the Maine Discovery Museum: optimal building performance and significant energy savings.

The museum completed a facility optimization and preventive maintenance program through Honeywell's MiniRetrofit™ Service, which let the museum tackle energy-efficient upgrades without an upfront capital investment.

Honeywell

Exhibiting Efficiency

As the largest children's museum north of Boston, the Maine Discovery Museum seeks to encourage creativity among its visitors. But with mounting utility bills and comfort issues, museum personnel were recently forced to do some creative thinking as well. The museum runs on a shoestring budget and found that energy and operating costs consumed much of its available funds, leaving little for needed facility upgrades and improvements.

Uncovering Opportunities

To address these problems, the museum contacted Honeywell for a facility audit in February 2008, which uncovered problems due to a lack of routine and preventive maintenance. For example, faulty sensors caused heating and cooling systems to run in parallel year-round, leading to high oil expenses. The audit also uncovered HVAC filters and coils that had gone years without being cleaned or changed.

"We had dueling heating and cooling systems, and they were constantly fighting each other," said Don Flanders, director of finance and operations. "Our heating system was still running in the summer, which forced the cooling system to use more energy to try keeping the facility somewhat comfortable."

Following the audit, the museum chose Honeywell to complete a facility optimization and preventive maintenance program through the company's MiniRetrofit™ Service, which allowed the museum to complete the necessary upgrades without an upfront capital investment. As part of the three-year agreement, Honeywell also conducts preventive maintenance. The contract is

structured so facility improvements and maintenance generate enough energy savings to finance the work.

Snapshot

Maine Discovery Museum

Profile

- Children's museum located in a historic building in downtown Bangor, Maine
- Occupying 29,000 square feet of space, the museum often has more than 700 visitors per day

Situation

A lack of preventive maintenance led to building inefficiencies, skyrocketing utility bills and comfort concerns. With energy and operating costs consuming more of its available funds, the museum sought a cost-effective way to make necessary improvements and reverse the downward spiral.

Solution

The museum tapped Honeywell for a facility optimization and preventive maintenance program through the company's MiniRetrofit Service, which let the museum tackle energy-efficient upgrades without an upfront capital investment. The improvements saved the museum more than \$11,000 within the first five months alone, putting the museum on track to reach the three-year payback term within one year.

To start, Honeywell replaced the museum's oil burner with a dual-fuel oil and natural gas burner. This let the museum choose the cheaper of the two fuels for burning. Honeywell also repaired the building automation system and its controls, which included updating temperature setpoints to better accommodate occupancy levels. Other work included changing filters, cleaning fan coils, vacuuming motors, replacing damaged sensors and calibrating thermostats and valves.

Proof of Prevention

Overall, service work has dramatically impacted the museum's bottom line. For example, in June 2007, the museum paid \$2,732 for more than 860 gallons of heating oil. One year later, after project completion, the bill dropped to \$39. The museum also cut electricity consumption from March 2007 to March 2008 by more than 40 percent.

The work also has an environmental impact. Five months after the repairs, the museum's oil use decreased by 2,400 gallons, reducing its carbon dioxide emissions by approximately 54,000 pounds – equivalent to removing almost five cars from the road for a year.

In the same time span, the museum saved more than \$11,000, thanks to the improvements and maintenance work. This five-month total puts the museum on track to reach the three-year payback term for the burner conversion and maintenance work within one year.

"Attention to service and maintenance has paid dividends for our organization," Flanders said. "We've improved building comfort and efficiency, decreased our impact on the environment and ensured optimal building performance for years to come."

Honeywell Building Solutions

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