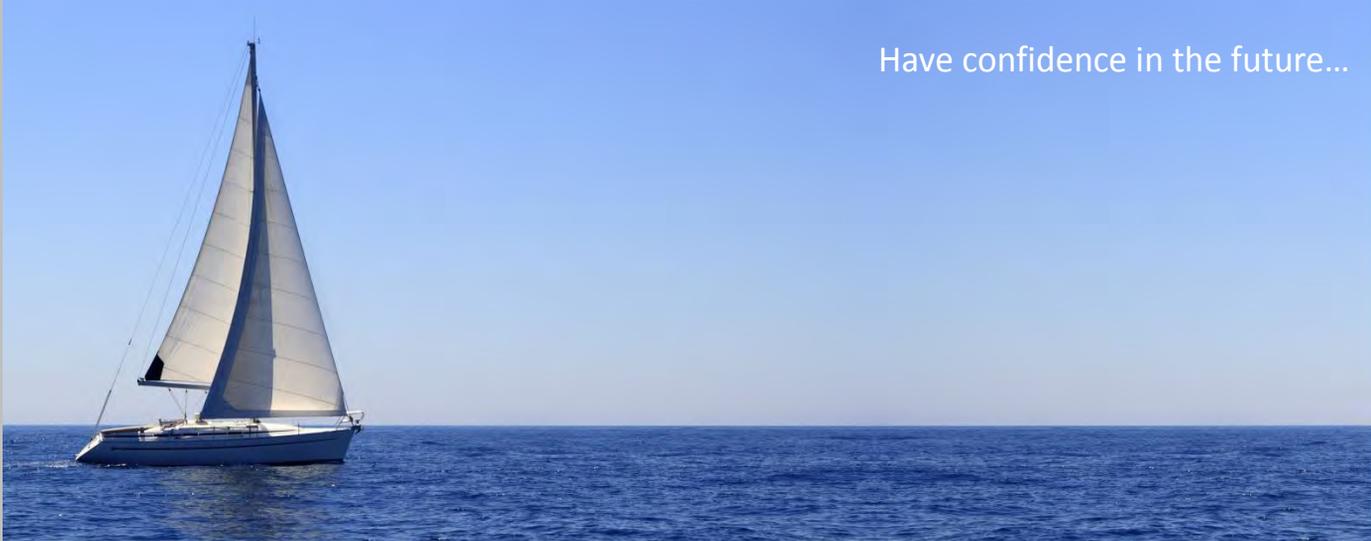


Retro Commissioning Sensor Suitcase(RCx)

Analytics, Recommendations and Implementation



Have confidence in the future...

This innovative energy savings product offers a low- cost, low-risk approach to implementing Retro Commissioning (RCx) in small commercial buildings. RCx is a proven approach and documented to be one of the most cost-effective means of improving energy efficiency in commercial buildings. An analysis of hundreds of commissioning projects found the median costs to be \$0.30/sf with simple payback period of 0.7 years, and median energy savings of 16%.

Small commercial buildings under 50,000 square feet do not typically have budgets or business economics that allows investing in enhancements, such as the comfort, cost and energy improvements that RCx provides. They also do not have "in house" staff with expertise in building systems, who can perform retro-commissioning or identify improvements opportunities. These building have been notoriously difficult to reach for efficiency upgrades; therefore tremendous untapped savings opportunities exist.

Technology + Process = Savings

We've streamlined the process to reduce the time and cost to implement. The RCx Sensor Suitcase provides a "turn-key" hardware and software solution that can be used by non-experts to automatically generate low/no-cost recommendations to improve building operating cost, comfort and energy performance.

RCx Sensor Suitcase is accomplished by 'embedding' the knowledge and skills of a highly experienced building commissioning practitioner into a scalable hardware and software package that can be easily deployed by a variety of building services personnel to make it easier for building owners to reap the benefits and cost savings from building commissioning.

Here's How it Works

The RCx process is initiated by using the sensor suitcase and its handheld tablet computer to guide installation of logging sensors at strategic building locations. As part of the process, the suitcase stores data on each sensor identifying the building in which it is installed, the type of measurement made by the sensor, and the sensor location (e.g., the room name and number). The tablet also provides easy-to-understand graphical instructions that guide the user in initiating configuration of each sensor and properly installing it. The sensors are left in place for 4 to 6 weeks and then retrieved, with each sensor returned to any slot in the suitcase.

The data on the sensors are then transferred from the suitcase to a computer used for data storage and running the suitcase RCx analysis software; the software generates improvement recommendations. Finally, recommendations are implemented directly by the building owner or GreenPath.

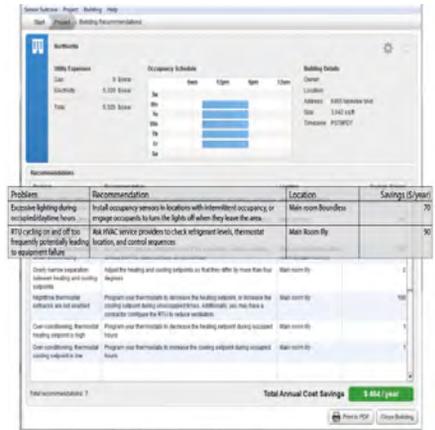


Retro-commissioning Sensor Suitcase System

GreenPath's innovative energy savings approach to implementing Commissioning (kCx) Services offers a low-cost, low-risk approach to implementing kCx services in large commercial buildings

Analysis Software

Analytic software developed in conjunction with the Lawrence Berkeley National Laboratory (LBNL) processes data from the sensor suitcase to automatically develop building-specific recommendations for improving the operation of the building. Implementation of the recommendations decreases energy costs, improves the comfort of occupants, and extends the life of building equipment. The software uses a graphical user interface to simplify user interactions and clearly present the recommendations. For each recommendation, the software provides the annual energy cost saving, an explanation of the existing problem, and a description of the recommended action to alleviate the problem, improve operations, and reduce building operating costs.



Sensor Suitcase Field Tests Show Promise

After a month or so of automatic data collection, the results from field tests on two commercial buildings in Berkeley, California and in the Portland, Oregon area identified potential savings of up 9 percent from simple measures such as using thermostat setbacks at night, eliminating short cycling of the rooftop units, using outdoor air economizing, eliminating excessive daytime lighting use. Entering basic information into the suitcase's computer, like energy consumption and costs from the building's electricity bill, allows the software to generate recommendations on how to improve the building's performance, and how much energy could be saved by each measure.

- > The sensor suitcase helps penetrate a market that's in dire need.
- > The sensor suitcase complements existing products and services.
- > Technology is pretty versatile and could give you data where you wouldn't otherwise know what the actual operating conditions are.
- > The sensor suitcase's guided sensor configuration and installation could significantly reduce labor time and required expertise.

About GreenPath Energy Solutions

GreenPath is a leading supplier of energy efficient building solutions to business, industry, and government. We focus on identifying low- and no-cost O&M-based measures and typically target initial energy savings of at least 10% in most commercial buildings. We also work with you to identify other measures that could require some investment, but may contribute additional savings of 10-20% over time. Our objective is to help facility managers and building owners control their operational, energy, and facility costs by providing energy auditing, retro-commissioning, and easy-to-use and effective software solutions.

To learn more about how you can save money and increase your asset values, please contact one of our account representatives today at sgraham@greenoathes.com.

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