

Reducing energy consumption and costs

MUKITY CENTRE

Commissioning rooftop units in a community center with EcoStruxure™ Building Advisor*.

Community Center - New Jersey, USA

schneider-electric.com/management-system

Life Is On





IoT-enabled solutions that drive operational and energy efficiency

EcoStruxure is Schneider Electric's open, interoperable, IoT-enabled system architecture and platform.

EcoStruxure delivers enhanced value around safety, reliability, efficiency, sustainability, and connectivity for our customers.

EcoStruxure leverages advancements in IoT, mobility, sensing, cloud, analytics, and cybersecurity to deliver Innovation at Every Level including Connected Products, Edge Control, and Apps, Analytics & Services. EcoStruxure has been deployed in 450,000+ installations, with the support of 9,000 system integrators, connecting over 1 billion devices.

One EcoStruxure architecture, serving 4 End Markets with 6 Domains of Expertise



Connected Products

The Internet of Things starts with the best things. Our IoT-enabled best-in-class connected products include breakers, drives, UPSs, relays, sensors, and more. Devices with embedded intelligence drive better decision-making throughout operations.

Edge Control

Mission-critical scenarios can be unpredictable, so control of devices at the edge of the IoT network is a must. This essential capability provides real-time solutions that enable local control at the edge, protecting safety and uptime.

Apps, Analytis & Services

Interoperability is imperative to supporting the diverse hardware and systems in building, data center, industry, and grid environments. EcoStruxure enables a breadth of agnostic Applications, Analytics, & Services for seamless enterprise integration.

Find out more about EcoStruxure

schneider-electric.com/ecostruxure





Overview

EcoStruxure[™] Building Advisor* diagnostics and reporting were deployed to provide ongoing commissioning on newly installed rooftop units at a one-story community center housing offices, a gymnasium, and community rooms. Five RTUs were connected to the cloud-based system for monitoring and diagnostics. Almost immediately, several problems with RTU scheduling, compressor cycling, and simultaneous heating and cooling demands were found leading to controls adjustments to reduce energy consumption and costs.

Only 10 HVAC sensors and settings on each RTU (a total of 50 points) were set up for monitoring: compressor status, cooling demand, gas valve status, heating command, outside air temperature, power status, return air temperature, suction line temperature, supply air temperature, and fan status. Despite the low level of instrumentation, several key issues were diagnosed.

The Challenges and Solutions

All RTUs Running Continuously

Challenge: The building equipment is supposed to be operational for 12 hours a day, however all five RTU fans were on almost constantly. The calculated cost of the excess operational time was approximately \$100 per week (€76 per week). If this trend of excess operational time continued for a full year, the avoidable energy cost would be around \$5,200 per year (€4,000 per year).

Solution: A proposal has been issued to remedy this problem by replacing the thermostats that control RTU operation, which were not retrofitted during the original project.

Simultaneous Call for Cooling and Heating

Challenge: The same RTU with the compressor cycling issue has times when it is demanding heating and cooling at the same time. Although the gas valve had not yet turned on, this programmatic issue could cause problems during swing months.

Solution: This problem was resolved with repair of a faulty ground wire.

Goal

Provide accurate monitoring and reporting to provide ongoing commissioning on newly installed rooftop units with the aim to reduce energy consumption and save costs.

Story

EcoStruxure[™] Building Advisor was able to identify and address several problems with the scheduling, cycling and cooling demands of the Rooftop units.

Solution

EcoStruxure[™] Building Advisor*

Results

- Assurance that system maintenance achieves desired objectives
- Digital history of building performance
- Consolidate building data and make it accessible to all vendors
- Projected annual savings of \$5,200





Short- cycling RTU Compressor

Challenge: One of the RTU compressors was found to be constantly short cycling when in operation. Issues with compressor cycling include increased compressor wear and premature equipment replacement, with constant starting and stopping, and comfort issues as cycling issues make it harder to control the supply air temperatures.

Solution: The compressor cycling was investigated and resolved when a faulty ground wire was fixed. The Bottom Line This facility earned 23 percent ROI from commissioning its rooftop units. Annual projected savings are more than $$5,000 \ (\in 3,800)$. Air Temperatures



Supply ----- RTU Status



Figure 1: Temperatures and status points from the RTU with the cycling compressor on the day it was fixed. A little after midday, the compressor status stops cycling on and off, and the RTU supply temperature, which had been over 100 degrees, drops.



ROI earned from commissioning rooftop units

\$5,200

Projected annual savings

4



Learn More













Office Building

Schneider Electric

Boston ONE Campus 800 Federal Street Andover, MA 01810 USA Phone: + 1 978 794 0800

www.schneider-electric.com

June 2017

*Formerly known as Building Analytics

©2014-2017 Schneider Electric. All Rights Reserved, Life Is On Schneider Electric is a trademark and the property of Schneider Electric SE, its subsidiaries and affiliated companies. All other trademarks are the property of their respective owners.

