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Case Study – Sigler Brea Sales Office

EDUCATION / HEALTHCARE / LODGING / GOVERNMENT / **OFFICE BUILDING** / RETAIL / SPECIAL

Connect™ Wi-Fi® Commercial Thermostats and Swarm Logic® Seamlessly Blend to Create a 'Virtual' Building Automation System

Improving HVAC Efficiency with Machine Learning

Annual Electric Bill Savings:
$5,989

HVAC Electric Usage Reduction:
29%

Electric Consumption Reduction:
43,671 kWh

Average Peak HVAC Electric demand Reduction:
13%

Overall Building Electric Usage Reduction:
8%

Encycle's Swarm Logic technology, synchronizes HVAC RTU operation on a real-time basis to lower electricity costs, maximize energy efficiency and maintain desired building comfort levels.

OBJECTIVES:

For over 50 years, Russell Sigler Inc. has been an independent distributor of Carrier heating, ventilating and air-conditioning (HVAC) products, systems and controls solutions for multiple market segments throughout the southwestern United States. In 2010, in a joint venture with Carrier, Sigler acquired the California territory making them one of the largest HVAC distributors in the world.

Of the 20 sales, administration and warehousing facilities located throughout California, the management team at the Sigler Brea location determined that the 27,000ft^2 sales and operations workspace was due for an upgrade to improve its overall efficiency and HVAC equipment performance. Their goals included lowering overall building energy usage, improving occupant comfort, monitoring and enhancing the performance of their existing rooftop units (RTUs), and replacing outdated thermostats. Well versed in offering comprehensive HVAC equipment, system and controls solutions, Sigler Brea also wanted to enhance the functionality, precision, monitoring and real-time management of their own RTUs.

SOLUTION:

Sigler Brea elected to upgrade their existing, outdated thermostats with Carrier® Connect™ commercial thermostats to control their RTUs. With a myriad of operating features built in, the Connect thermostats were easy to install, set-up and use. To further enhance the functionality, monitoring and real-time management of their RTUs, Sigler Brea chose to interface their new thermostats with Encycle's Swarm Logic® energy savings technology. This optional interface connects Sigler's thermostats to a networked, cloud-based system. Here, they are dynamically synchronized to operate most efficiently in response to changing conditions such as outdoor temperature and building occupancy levels.

By integrating the precise control, sensing and data collection features built into the Carrier Connect commercial thermostats with Swarm Logic's technology, Sigler Brea created a 'virtual' building automation system (BAS), and achieved a new level of performance, comfort, energy efficiency, reporting and HVAC management.

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"Integrating the Carrier Connect thermostats with Swarm Logic has clearly given us improved energy management, comfort and real-time reporting."

Anthony Bermudez,
Area Controls Sales Manager,
Russell Sigler, Inc.

SYNOPSIS:

Achieving building automation system (BAS) benefits often presents unique technical and financial challenges for small- to medium-sized buildings. These can include:

- HVAC system designs that do not justify the investment required for a BAS
- Customers that may not want or need additional BAS features
- Up-front costs and multi-year payback scenarios can be a deterrent
- System complexity may drive the need for full-time management

Such was the case recently facing management at the Brea, California sales office of Russell Sigler, Inc. They wanted to improve their RTU's performance, increase their employee's comfort, lower energy usage and also achieve an innovative level of HVAC 'system' management. Additionally, compliance with Title 24 — California's energy code designed to reduce wasteful and unnecessary energy consumption in newly constructed and existing buildings — was a significant contributing factor.

To begin the process, Sigler drew from their expertise and selected Carrier® Connect™ Wi-Fi® commercial thermostats to replace their existing ones. The Connect thermostat's many features include:

- Intuitive 2.8" touchscreen interface
- Smartphone mobile app (iPhone and Android) and web portal
- Title 24 compliance
- Energy use monitoring
- Ease of installation, set-up and usage

Once the new Connect thermostats were installed, Sigler Brea wanted to further enhance their functionality, monitoring and real-time management. To accomplish this, they would synchronize Sigler's RTUs, transforming them into smart, networked, energy-responsive assets. "Sigler Brea had 13 rooftop units with individually connected thermostats, and wanted to have the enhanced control and energy management benefits of a traditional BAS, but without the associated complexity and at 10-20% of the cost." said Chris Hensley, Executive Vice President of Sales and Marketing at Encycle. "Our cloud technology and proprietary and patented algorithms made this a perfect solution to meet all of Sigler Brea's needs.

Now, at Sigler Brea, the successful integration of the Carrier Connect thermostats with Swarm Logic Virtual BAS® technology has created which dramatically improved their building's operational — and subsequently — energy efficiency, by executing the following protocol:

- Carrier Connect thermostats collect data from Sigler Brea's RTUs every few minutes
- This collected data is then sent to Swarm Logic via the cloud
- This interpreted data defines decisions to optimize each RTU's operations and returns the decision to Sigler Brea's Connect thermostats
- The Connect thermostats then adjust the RTUs in accordance with pre-set comfort and energy usage parameters within Sigler Brea's office space.

"We were excited to maximize our facility's RTU's efficiency by extending the full operational capabilities of the Carrier Connect thermostats with an energy management system," said Anthony Bermudez, Area Controls Sales Manager of Russell Sigler, Inc. "The dashboard is intuitive, easy to use and provides us with a wide range of management tools and important operating data." he continued.

As a result, Sigler Brea has realized up to 20% reductions in HVAC kW, kWh, and CO_2, which helps improve their bottom line. "Access to the portal is easy and secure," commented Anthony Cerrato, Controls Sales Manager of Sigler Brea. "Our authorized personnel log in on a weekly basis to review summarized trending issues such as energy savings, demand response and RTU performance issues. Right after the initial integration of our Connect thermostats, we were able to identify RTUs which were running when they shouldn't have been and re-configured them immediately," he continued.

Project Summary

Location: Brea, California

Project Type: Controls retrofit and RTU optimization

Building Size: 27,000ft^2

Facility Usage: Corporate branch sales office

Objectives: Improve HVAC RTU performance, reduce utility costs, increase occupant comfort, access overall performance data, comply with California's revised Title 24 relative to OpenADR.

Controls: Carrier® Connect™ Wi-Fi® Commercial Thermostats

Major Decision Drivers: Ability to fully utilize the built-in control capabilities of Carrier® Connect™ Wi-Fi® thermostats. Ease of integration with Encycle Swarm Logic®. Compliance of Title 24 through OpenADR features of Connect thermostats.

Unique Features: Integrates Carrier Connect Commercial Thermostats with Swarm Logic technology to maximize RTU performance, occupant comfort and energy savings.

Installation Date: 2017

For more information, contact your nearest Carrier Representative, call 1.800.CARRIER or visit our web site at carrier.com/commercial

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