COMPANY
Callida Energy

TECHNOLOGY
Callida Energy
Occupant App Solution

DEMONSTRATION SITE & ADDRESS
NYPD 121st Precinct
970 Richmond Avenue
Staten Island, NY

DEMONSTRATION PERIOD
08/14/2015 – 10/23/2016

SYSTEM(S) INVOLVED
COOLING AND VENTILATION

TYPE OF SAVINGS
GENERATED
ELECTRICITY
(Peak demand and energy consumption)

VENDOR'S POTENTIAL
FOR SAVINGS
25%
HVAC energy

SAVINGS ACHIEVED
IN THIS DEMONSTRATION
31%
HVAC energy

SAVINGS

Technology Description

The Callida Energy Occupant App combines a smart phone app that facility occupants use to rate workplace comfort and a back-end system for facility managers. The back-end system visualizes comfort problems on a dashboard, analyzes comfort and occupancy patterns and recommends improved HVAC control strategies in terms of zone schedules and thermal set points. With just one click, occupants provide comfort ratings on their workspace or adjacent rooms. The facility manager dashboard visualizes comfort problems for each zone based on a consensus of individual occupant ratings using a 5-point scale ranging from "too hot" to "too cold." Occupant inputs provide data to create a predictive model for each zone. The Callida system's analytical engine predicts zone occupancy, incorporates constraints set by the facility manager and recommends more realistic zone schedules and thermal set points causing the cooling or heating to be turned down or off when the space is empty. Use of the Callida Occupant App solution reduces energy use, costs and carbon emissions while improving occupant comfort.

Optimum Facility Characteristics

• Commercial facility with centralized HVAC systems under BMS control
• Multi-zone, VAV system but the Callida solution can also accommodate CAV systems
• Works well in facilities with variable or stable occupancy patterns
• Works well in business office or mixed-use facilities

Demonstration Results

Technology was installed at one location, with weather-normalized HVAC savings of 31%. The Callida Occupant App was perceived by facility occupants as easy to install and use. Users were able to get the app running in a few minutes without a training session. Callida recommended changes to zone schedules and thermal set points for three different types of rooms based on occupancy patterns and Facility Management inputs. After the Callida recommendations were implemented, energy savings were achieved with no increase in hot calls/cold calls. Also, use of the Callida solution uncovered occupant comfort issues that had not been previously reported, especially on days with high ambient temperature. Callida recommended implementation of occupancy sensors for the facility interior lighting to enable lighting energy savings in a manner consistent to what was achieved with the Callida solution for HVAC energy reductions. The project demonstrated the effectiveness of easily defining different HVAC control strategies by type of room for a mixed-use commercial facility using the Callida solution.

Recommendations for Implementation

• Floor plans with HVAC zones identified are the key requirements to implement the Callida Occupant App solution.
• For BMS-controlled facilities: will need to identify building points for zone schedules and zone thermal set points. Energy consumption data can be gathered from meters/sub-meters or building points to verify savings.
• For facilities not under BMS control: will need to gather HVAC schedules and thermal settings in place in the HVAC system. Energy consumption data can be gathered from meters/sub-meters to verify savings.
• If desired, a remote network connection or a wireless router installed at the site will enable real-time monitoring of energy consumption data but this is not required for implementation of the Callida Occupant App solution.
• Implementation of the Callida Occupant App provides an excellent opportunity for engaging with facility occupants and improving collaboration with Facilities Management.

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