CYPRESS ENVIROSYSTEMS, INC.

IDEA | **TECHNOLOGY DEMONSTRATION OVERVIEW**

COMPANY
Cypress Envirosystems, Inc.

TECHNOLOGY
Wireless Pneumatic Thermostat (WPT)

DEMONSTRATION SITE(S)
Q021 Edward Hart School
(147-36 26 Avenue, Queens NY)

DEMONSTRATION PERIOD
October 2014 – October 2015

SYSTEM(S) INVOLVED
HEATING AND COOLING

TYPE OF SAVINGS GENERATED
FUEL OIL

VENDOR'S POTENTIAL FOR SAVINGS
10%-25%
in HVAC energy consumption

SAVINGS ACHIEVED IN THIS DEMONSTRATION
20%



SAVINGS

Technology Description

The Cypress Envirosystems Wireless Pneumatic Thermostat (WPT) retrofits an existing pneumatic thermostat to provide Direct Digital Control (DDC)-like zone control functionality at a fraction of the time and cost compared to a conventional DDC upgrade, without disturbing occupants. The WPT enables remote monitoring of zone temperature and branch pressure, remote control set points, and programmable setback or setup of the pneumatic HVAC systems. This functionality gives operators the ability to detect and diagnose faults that may cause energy waste or discomfort to occupants. It also enables integration with utility Demand Response programs.

Optimum Facility Characteristics

- Central heating and cooling systems with or without BMS
- Uneven temperature distribution among spaces
- Existing pneumatic thermostats
- Stable internet connection

Demonstration Results

After retrofitting 69 of the school's thermostats and actively engaging with the technology, a savings of 20% in oil consumption was recorded. In 17 zones the WPT detected likely equipment faults, which were causing improper temperature control issues and energy waste. Building operators were then able to complete the repairs, which contributed to the recorded savings of 20%. Since oil is used in this facility for space heating, savings were calculated using only the months in the heating season. During the demonstration the boilers were repaired and the insulation was removed and not replaced until after the completion of the demonstration. As a consequence, oil consumption savings could have been higher and additional savings beyond the 20% could have been expected.

Recommendations for Implementation

- The WPT system can be integrated with existing Building Automation Systems through BACnet/IP
- Internet connection with the Cypress Greenbox needs to be verified for optimum operation of the trend logs and wireless communication with users and/or BMS.
- Fuel consumption data from utility bills, or monthly tank dipping in the case of oil, can be analyzed to determine baseline energy usage.

energy NYC

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