Psychology Laboratory #76

Building Gross Sq.Ft.: 152,725

Simple Payback: 3.3 YRS

Retrocommissioned: Sep-Nov 2010

Annual Energy Avoidance: 24%
(Based on one year's non-normalized data)

Principal Building Use: Offices and Classrooms

Facility Contact: Earle Heffley

Building & Occupant Overview

The Psychology Laboratory is an eight story complex with a wide array of rooms, from classrooms and offices to animal rooms, surgery rooms, and conference rooms. The building is occupied by predominantly graduate students and professors, whose schedules vary depending on the semester period. The building was originally built in 1967 and the HVAC equipment is from this period. There are eighteen (18) air handling units (AHUs): one of which (AHU-18) is a 100% OA unit serving the animal colonies. Cooling is provided by means of campus chilled water. The heat in the building is provided by a combination steam and hydronic system. Building controls are Siemens MEC Series predominantly.

The facility total metered energy during previous year was 29,662 MMBTU.

Post RCx Energy Use Intensity (EUI) & Cost Index (ECI)

E.U.I.	E.C.I. #1	E.C.I. #2*
282.1 kBTU / Sq.Ft.	$4.18 / Sq.Ft.	N/A

** THE QUANTITY OF PEOPLE THAT OCCUPY THE BUILDING ON A GIVEN DAY IS NOT KNOWN.*

Retrocommissioning Specifics & Results

The air handling units (AHUs) providing air conditioning were maintaining space conditions 24/7/365. The primary energy conservation method was scheduling the AHUs serving the office areas to shut down for 10 to 12 hours a day and some on the weekends. This was possible due to the perimeter radiation on the exterior offices.

Building occupants complained about the faulty readings on the thermostats. Upon RCx investigation of the stats, it was noted that many of the thermostats were out of calibration, if they worked at all! Therefore, the team did a room by room visit and re-calibrated or replaced bad thermostats, as well as providing information to occupants on how to use the thermostat properly and efficiently. Dampers and actuators were repaired and the outside air was reduced in many of the units. The reduction in excess OA quantities will significantly lower the buildings chilled water and steam use, as less completely unconditioned air will be passing over the coils, requiring less energy to achieve the same comfort levels.

Project Highlights

- Identified numerous hot water reheat valve problems that required the valves (approx. 100) to be replaced.
- Identified damper linkage problems that needed to be repaired. Reduced OA intake quantities to appropriate levels.
- Shut down air handling units and unnecessary exhaust systems at night.
- Repaired steam condensate leaks in the basement mechanical room. Valuable steam condensate was going down the drain.
- Restored occupant confidence in the temperature controls.
- Provided documentation to building occupants to assist in maintaining the savings.