Loomis Laboratory of Physics, #67

Building Gross Sq.Ft.: 175,513

Simple Payback: 2.8 YRS

Retrocommissioned: Jun—Jul 2008

Annual Energy Avoidance: 20%

(Based on one year's non-normalized data)

Principal Building Use: Classrooms & Scientific Labs

Facility Contacts: Jan Kane & Jerry Cook

Building & Occupant Overview

Loomis Lab is the center for physics for the Champaign-Urbana campus. The building was originally built in 1958 and since then remodels and HVAC upgrades have taken place. Undergraduate students attend classes and labs while scientists perform research. There are 14 different air handling units serving the comfort conditions of the building. Fume hoods are located throughout to remove the various odors from the labs. 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 platform is the Barber Coleman Network 8000 with Microzones and LCMs. A UNC was installed to obtain web graphics.

Facility total metered energy during FY08 was 58,682 MMBTU.

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

E.U.I.	E.C.I. #1	E.C.I. #2*
251.2 kBTU / Sq.Ft.	$4.11 / Sq.Ft.	N/A

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

Retrocommissioning Specifics & Results

The 14 air handling units (AHUs) providing air conditioning were maintaining space conditions 24/7/365. The primary energy conservation method was scheduling 12 of the AHUs serving the areas to shut completely off for 6 or more hours each day. The remaining units were scheduled to reduce airflows during unoccupied hours.

An exhaust fan serving the restroom areas were brought over to DDC control and scheduled to operate when building was occupied.

Various outside air dampers were severely corroded. These were causing unnecessary freezestat trips and undesired unit shutdowns. Outdoor air delivery to classrooms and spaces was not compliant with the ASHRAE standard 62.1. Therefore, these were replaced in a larger project.

Every AHU was visited and each of its sensors were calibrated and the sequences of operations were verified.

Project Highlights

- Occupancy schedules were created and applied to the operation of 12 of the 14 air handling units
- Upgraded HVAC controls on a few AHUs
- Scheduled exhaust fans
- CO2 sensors were installed on two air handling unit systems serving single zone lecture halls
- Worked along with a professor to reduce energy levels used by specific lab air conditioning equipment
- Replaced a mixed air temperature sensor that read 18 deg F below the actual temperature improving economizer cycle

November 9, 2012