

ACES Library, Info. & Alumni Center #377



Building Gross Sq.Ft.: 82,742

Simple Payback: 0.4 YRS

Retrocommissioned: 2008 May—June

Annual Energy Avoidance: 42%
(Based on one year's non-normalized data)

Principal Building Use: Library and Conference Rooms

Facility Contacts: R. Moller, D. Gentzler & J. Schrader

Building & Occupant Overview

The ACES Library Info. And Alumni Center is the central repository for literature, media and meeting rooms supporting the agricultural, consumer and environmental sciences. The building was originally built in 2001. The facility has regularly scheduled hours, closing typically by 10pm. There are two variable volume air handling units (AHUs) which condition the building. The building's cooling needs are met by the campus chilled water loop, while the heat in the building is provided by a combination campus steam and hydronic system. AHUs and heating systems have Barber Colman LCMs and GCSs for DDC control, while the terminal VAV and radiation devices are pneumatically controlled.

The facility's total metered energy during the previous year was 32,638 MMBTU.



Image by ulhistoriesproject.chass.illinois.edu

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

| E.U.I. | E.C.I. #1 | E.C.I. #2* |
|---------------------|-----------------|------------|
| 230.6 kBtu / Sq.Ft. | \$3.81 / Sq.Ft. | N/A |

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

Retrocommissioning Specifics & Results

ACES Library is a fairly new building with programmable controls available. These were closely reviewed and later tweaked to provide energy savings during all hours of operation. The humidity sensors on the air handling units were replaced, resolving issues with economizer cooling. Fan control strategy was carefully reviewed since the building was having pressurization issues. Return fans were set to run *faster* than supply fans in the programming; RCx addressed this improving building pressurization. While working on one of the two AHUs, a defective DDC controller was found and replaced, restoring proper sequencing and control.

Each pneumatically controlled variable air volume box was calibrated and inspected for accuracy. Minimum airflows were found to be excessive, which RCx recalculated and reduced. During the investigation of each VAV box, a pneumatic leak in the main line was found above the second floor ceiling. This bleeding off caused all of the 2nd, 1st and basement VAVs to maintain full heat, which in turn caused the supply fan to run at 100%, wasting large amounts of energy.

Project Highlights

- Programmed occupancy schedules to reduce fan systems while unoccupied & close outdoor air dampers
- Leak in pneumatic tubing was found, corrected bringing the VAVs under control and slowing the supply and return fans
- Restroom exhaust fans (14,000 CFM) are shut off during unoccupied hours
- Variable volume boxes were commissioned, reducing minimum air quantities
- Abandoned use of domestic water booster pump
- Many maintenance items were addressed: bad humidity sensor, programs checked and improved, condensate meter wired, etc...