

# Undergraduate Library #99



**Building Gross Sq.Ft.:** 95,905

**Simple Payback:** 1.2 YR

**Retrocommissioned:** Mar 2010

**Annual Energy Avoidance:** 26%

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

**Principal Building Use:** Academic Research and Study

**Facility Contacts:** Lori Mestre, Matt Emert & Jeff Schrader

## Building & Occupant Overview

The Undergraduate Library is dedicated to furthering the knowledge of undergraduate students on the Champaign—Urbana campus. The building was originally built in 1969 and was constructed underground to offer symmetry to the north quad and to prevent casting a shadow on the Morrow Plots. The facility has the capacity for 150,000 volumes and seats 1,899. The library has standard hours it is open: 24/5 with Friday closing at 10pm and Saturday from 10am-10pm. There are six (6) air handling units, four of them multi-zone units. Cooling is provided to the building by the campus chilled water loop. The heat in the building is provided by a combination steam and hydronic system. Building controls are Siemens Modular Series.

Facility total metered energy during previous year was 26,426 MMBTU.

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

E.U.I.	E.C.I. #1	E.C.I. #2*
202.7 kBtu / Sq.Ft.	\$3.09 / Sq.Ft.	\$156.11 / person

\* AT FULL 1,899 PERSON OCCUPANCY.

## 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 to either shut down or reduce air volumes over the evenings on the weekends, when the library is closed. Exhaust fans associated with these systems are shut down during these periods.

Outside air dampers and steam valves at the AHUs were found leaking air and steam wasting energy. New dampers and valves were installed. The fan belts were replaced and the coils were cleaned.



## Project Highlights

- DDC controls were completed on six (6) air handling units for improved sequences of operation and comfort control
- The AHUs were scheduled to maintain space conditions only when occupied
- Replaced steam reheat valves at four (4) AHUs which were leaking through profusely
- Upgraded the outside air dampers to include two sets; one for economizer and the other for minimum outside air
- Employed CO2 sensors in common spaces to control outside air quantities
- Recalibrated all space thermostats and zone dampers controlling the air to each space