

Huff Hall #058



Building Gross Sq.Ft.: 182,536 **Expected Simple Payback:** 3 YRS
Retrocommissioned: Sept—Oct 2012 **Expected Annual Utility Avoidance:** 25% OR ▼
Campus Energy Rank FY12: 59 4,616 MMBTU
Principal Building Use: Offices, Classrooms, and Athletics
Facility Contacts: Penny Nigh

Building & Occupant Overview

Huff Hall plays host to various athletic competitions and houses the College of Applied Health Sciences. The building is the home to the Fighting Illini volleyball, wrestling, and gymnastic teams. The main gym can seat up to 4,500 spectators. The building opened in 1925 and has one constant and three variable volume air handlers for conditioning of the spaces. There is a fifth unit that is heating only that supplies the third and fourth floor on the south east corner. Building heat is provided by six hot water heat exchangers. Three are for perimeter radiation and three are for air handler reheats. The building controls systems are a combination of Siemens MEC's and TAC MNB's.

The facility's total metered energy during FY11 was 18,462 MMBTU.

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

E.U.I.	E.C.I. #1	E.C.I. #2*
101 kBtu / Sq.Ft.	\$ — /Sq.Ft.	\$ — / person

*~5,000 PEOPLE OCCUPY BUILDING ON A GIVEN DAY

Retrocommissioning Specifics & Results

The air handling units (AHUs) providing air conditioning were maintaining space conditions in offices and classrooms 24/7/365. The primary energy conservation method was scheduling the AHU's off during non occupied hours.

Occupancy sensors were installed on the south side to control lighting and variable air volume boxes (VAV) for spaces. Existing occupancy sensors that were for lighting control only on the north side were utilized to control VAV boxes as well. This will reduce the CFM output of the AHUs when spaces go into unoccupied mode during an a normal occupied time.

There are approximately 65 VAV boxes total between the three variable volume AHUs. The boxes and thermostats were inspected for proper operation and calibrated or replaced as needed.

The gym has three 20,000 CFM exhaust fans with no make-up air to the space or building. These were found to be running the majority of the time even if the gym was not in use. This was causing the building to become extremely negative and pulling unconditioned outside air in wherever it could. This is creating condensation and comfort issues and also creating additional energy expense from the HVAC and perimeter systems. DDC and VFDs were installed to control the exhaust fans on occupancy schedules.



Project Highlights

- There were eight thermostatically controlled valves added to perimeter radiators on the second floor gym entrances. This will control the hot water flow and temperatures in the gym stairwells.
- There were additional sensors installed in air handlers to improve the sequence of operations, and comfort control.
- All four AHUs and some restroom exhaust fans are scheduled off during unoccupied conditions.
- DDC was installed to control AHU3's heat exchanger.
- DDC and VFDs were added to control the gym exhaust fans and to shut them off when the gym is un-occupied.