

Illinois Sustainability Tech. Center, #206



Building Gross Sq.Ft.: 52,887 **Expected Simple Payback:** 4 YRS
Retrocommissioning Team Visit Period: FY 2011 May—Sept **Expected Annual Utility Avoidance:** 20% OR ▼
Campus Energy Rank FY09: 126 3,362 MMBTU

Principal Building Use: Offices and Labs
Facility Contacts: [Luis Felipe Rodriguez](#)



Building & Occupant Overview

The [Illinois Sustainability Technology Center](#) is the division of Prairie Research Institute at the University of Illinois. The building was originally built in 1990 and since then multiple remodels and HVAC upgrades have taken place. Building occupancy is primarily lab research and office personnel, from 8:00AM to 6:00PM Monday-Friday. There are seven air handlers that condition the building. Five of these are 100% outside air units that supply the lab area. The labs have a Phoenix control system for controlling pressurization. Cooling is provided by means of two electric York R11 chillers totaling 380 tons. The heat in the building is provided by a hydronic system. Building controls are Barber Colman LCMs and GCSs while the radiation devices are pneumatically controlled.

Facility total metered energy during FY10 was 16,813 MMBTU.

Project Highlights

- Control points were added on AHU1,2,3,4, and 5. This provided improved control sequences, scheduling, and comfort control.
- AHU's were either scheduled off or set backs were implemented during un-occupied conditions.
- Building pressurization control was added to maintain a positive envelope.
- Both the reheat and preheat systems have a primary/secondary heat exchanger. The redundant units were isolated so only the primary would be active and not all four.
- Non-operable fume hoods were repaired and put back in service.

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

E.U.I.	E.C.I. #1	E.C.I. #2*
254 kBtu / Sq.Ft.	\$3.29 / Sq.Ft.	\$4355 / person

* ~40 PEOPLE OCCUPY BUILDING ON A GIVEN DAY

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 AHU serving the office areas to shut down for 12 hours a day. This was possible due to hot water radiation on the perimeter offices, which is controlled independently by the VAV units.

The AHU's serving the lab areas were scheduled for a set back during unoccupied times. This was achieved by removing the non-functional inlet vanes and installing VFD's on the supply fans. The fan speed was reduce to a point where the labs were slightly negative. Building pressurization control was added to help maintain a positive building envelope.

Control points were added and devices replaced to help achieve energy conservation and improve comfort conditions. All the VAV boxes in the office area were inspected for proper operation and calibrated. There was a reduction of air flow to the spaces, resulting in fan energy savings and improved comfort conditions.

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Illinois Sustainability Technology Center is NOT connected to the campus chilled water loop and therefore does not have any "Chilled Water Usage", but cooling energy will form part of the Electricity Usage.

