

Engineering Hall, #15



Building Gross Sq.Ft.: 93,188

Simple Payback: 3.0 YRS

Retrocommissioned: Mar—Aug 2012

Annual Energy Avoidance: 39%
(Based on four months non-normalized data)

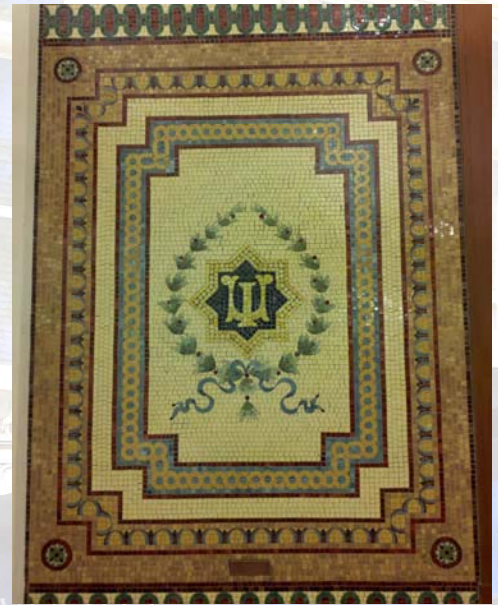
Principal Building Use: Offices, Classrooms and Computer Labs

Facility Contacts: Greg Larson

Building & Occupant Overview

Engineering Hall was completed in November of 1894. Designed by U of I graduate student George Bullard, it was the first building constructed on campus solely for a single college on the campus. The construction of this building led to the adoption of orange and blue as the official school colors because previously the school had not had official colors, and they needed to know how to decorate the building. Today, the building is mainly used for office space and is home to the deans and academic advisors of the College of Engineering. Many conference rooms and two computer labs for engineering students also are housed in the building. There are four VAV air handler units in the building. Building heat is provided by campus steam to a radiation system and also hot water to VAV reheats. Cooling is provided by the campus chilled water system. The building controls consist of TAC LCMs for AHUs and pneumatic at room VAVs.

The facility's total metered energy during the previous year was 14,864 MMBTU.



Project Highlights

- Modified the pneumatic controls on 130+ VAVs to move away from a Max-Min-Max control sequence to a conventional VAV sequence
- Re-balanced each of the VAV boxes to improve air distribution throughout respective floors
- Installed CO2 sensor in return air of an AHU serving computer labs to reduce outside air conditioning
- Checked all hydronic controls in facility, replacing 35+ perimeter / reheat valves and fixing the building chilled water control to allow for modulation

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

| E.U.I. | E.C.I. #1 | E.C.I. #2* |
|--------------------|-----------------|-------------------|
| 97.3 kBtu / Sq.Ft. | \$2.25 / Sq.Ft. | \$558.66 / person |

* - 375 PEOPLE OCCUPY BUILDING ON A GIVEN DAY

Retrocommissioning Specifics & Results

The air handling units (AHUs) were operating based on occupancy schedules upon arrival. These were expanded upon after consulting with the facility manager.

The primary energy conservation measure was changing the VAV system operation. Original design called for the Max-Min-Max operation, where the air flow would reach maximum during the heating season. Since the building also has perimeter heat, the VAV pneumatic controls were modified to the conventional VAV Min-Max operation. This has allowed the building comfort to improve and reduce energy.

The hydronic systems also required a large coordinated effort to replace over 35 control valves, many of which were located behind wood credenzas that had to be modified for permanent access. The building chilled water valve control also required adjustments to allow it to modulate to control flow; it was found wide open.

Facilities & Services