Armory #006

Building Gross Sq.Ft.: 260,747

Simple Payback: 3.4 YRS

Retrocommissioned: Apr—Jun 2011

Annual Energy Avoidance: 36%

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

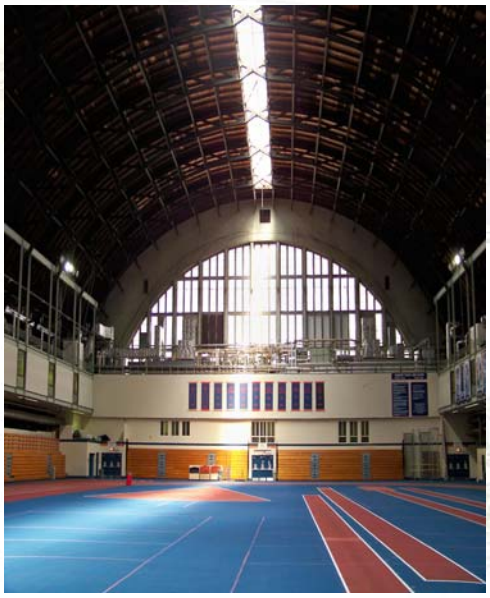
Principal Building Use: Track Activities and Military Offices

Facility Contacts: Tammy Collins and Jenny Klein

Building & Occupant Overview

The Armory was originally designed as a military drill hall and was used as a dormitory during World War I. Today, the Armory Building houses the offices of several University of Illinois departments and units for Army ROTC, Air Force ROTC, Marine Corps, and Navy ROTC. Numerous academic courses are held each semester in the Armory's classrooms. The indoor track is used by the Illinois track team for training and intercollegiate competitions; by the ROTC cadets and Police Training Institute for drills; and by University faculty, staff, and students for their daily exercise. There are five VAV air handler units in the building. Building heat is provided by campus steam to a radiation system that is separated into five zones and also hot water to VAV reheats. Cooling is provided by the campus chilled water system. The building controls consist of a combination of Siemens compacts and modulars for the AHU's and a single MEC for building chilled water entrance.

The facility's total metered energy during the previous year was 20,264 MMBTU.



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

E.U.I.	E.C.I. #1	E.C.I. #2*
49.4 kBTU / Sq.Ft.	$0.95 / Sq.Ft.	$137.56 / person

** 1,802 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 AHUs off during non occupied hours.

To maintain comfort conditions, all thermostats were calibrated and / or replaced and the heating valves were inspected for proper operation. There are approximately 118 VAV's in the building. They were all inspected for proper operation and were calibrated and balanced which allow for the reduction of air to the spaces, resulting is fan energy savings without compromising comfort.

Inlet vanes were removed on AHU 1, 2 and 3 and flow monitoring stations were removed on AHU 4 and 5. Removing these will eliminate any unnecessary pressure drops.

The return and outside air duct for AHU 1 & 2 were modified to eliminate stratification. This will prevent nuisance freezestat trips and reduce chilled water use in winter.

Project Highlights

- DDC controls were installed on AHU 1, 2, 3, 4 and 5 as well as the reheat heat exchanger on the west deck. This provided improved sequences of operation, scheduling, and comfort control.
- Set back schedules were created on AHU's for un-occupied conditions.
- Approximately 15% of the VAV controllers were inoperable and replaced.
- AHU Dampers were calibrated and properly set which will result in approved economizer mode for winter cooling needs.
- The five perimeter radiation zones were automated through DDC to allow ease of shutoff when conditions merit.

November 9, 2012