

Krannert Center for Performing Arts #52



Building Gross Sq.Ft.: 298,293

Simple Payback: 0.5 YRS

Retrocommissioned: Oct-Dec 2008

Annual Energy Avoidance: 36%
(Based on one year's non-normalized data)

Principal Building Use: Performance Halls

Facility Contacts: Robert Gross & Randy Greever

Building & Occupant Overview

The Krannert Center for the Performing Arts is a building dedicated to the furthering of the musical, theatrical and dance arts in a multicultural approach. The complex is composed of three large theaters, auxiliary spaces and two underground parking garages on its flanks. Construction on the building was completed in 1969. It contains 13 air handling units (AHUs). Six of the units have variable frequency drive (VFD) fan control. The original building heating water system serves the reheat coils associated with the Great Hall Theater. Direct steam serves the coils in the other large venue spaces. There are two steam-to-hot water convertors in the original building and one in the annex. Cooling is provided by means of campus chilled water.

The facility total metered energy during the previous year was 93,953 MMBTU.

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

E.U.I.	E.C.I. #1	E.C.I. #2*
184.2 kBTU / Sq.Ft.	\$3.14 / Sq.Ft.	NA

* THE QUANTITY OF PEOPLE THAT OCCUPY THE BUILDING ON A GIVEN DAY IS NOT KNOWN.

Retrocommissioning Specifics & Results

The savings at Krannert were gained by digging deep into the actual design and performance of the air handling units. Some of these units were running 24/7 with large amounts of outside air, even though no one was in the room! Comfort problems also existed, but were corrected using programmable controls. At the same time the controls are used to reduce energy and air quantities while the theater is vacant. Carbon dioxide (CO2) sensors were installed to deliver the minimum amount of outside air to satisfy the patrons, and save energy.

Many maintenance items were also addressed, including leaking coil control valves, damper actuation, plugged and dirty return air filters and ductwork, and calibration of existing controls. These contributed to the savings. A follow-up team installed new controls during Dec. 2007 to Feb. 2008. Additional future projects were recommended and are moving forward in 2011.



Project Highlights

- Capitalized on occupant diversity in theaters to create schedules to shut down mechanical equipment when & where possible
- Satisfied indoor air comfort using CO2 sensors, reducing the quantity of outside air
- Provided DDC Controls and web graphics for remote programming and adjusting
- Enhanced humidity control of practice theaters thereby saving chilled water costs
- Recommended use of occupancy sensors for lighting control in practice theaters
- Replace many thermostats for better temp control