

FREER HALL #0064

Building Gross Sq.Ft.: 93,889

Campus Energy Rank FY12: 54

Retrocommissioned: Mar 2013—May 2013

Principal Building Use: Laboratories, Offices, and Classrooms

Facility Contacts: Tina Candler



Building & Occupant Overview

Freer Hall (previously known as Women's Gymnasium) is a building dedicated to research, including physical therapy and its' affect on the human body, both physical and psychological. The building opened in 1930 and has underwent several remodels and revisions over the years. There are five significant air handling units serving the various spaces, including a 100% outdoor air fan for the locker rooms on the north end of the building. There are also several cooling only liebert units serving spaces, as well as ceiling hung fan coil units serving a majority of the first floor north end. Building heat is provided by a mixture of four hot water heat exchangers and steam radiation. The building control system is mainly Siemens controls, but TAC-LON controllers remain on AHU-1 and HX-1 serving the north basement. The facility's total metered energy during FY12 was 19,269 MMBTU.

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

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

*~ 200 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 labs 24/7/365. The primary energy conservation method was scheduling setbacks and reducing CFM during non occupied times.

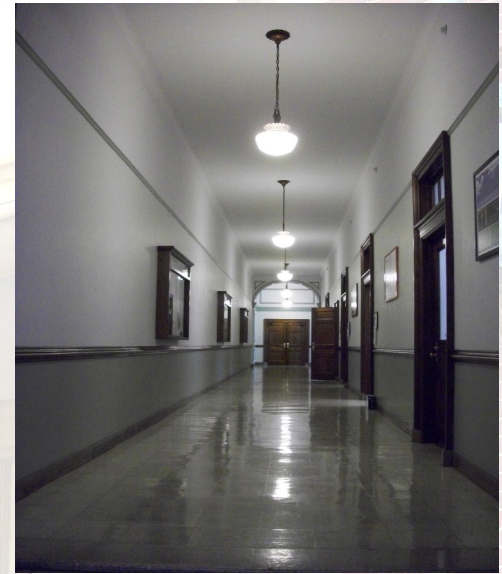
The first issue recognized by the team was the extreme negative pressure of the building. Upon further investigation, it was determined the chimneys were previously used as exhaust for toilet rooms and old locker rooms that no longer require this exhaust. Therefore a project has been funded to permanently cap the chimneys at the top to keep unnecessary exhausting of conditioned air 24/7/365.

Occupancy sensors were installed in the labs, offices and conference rooms in the north basement and south 3rd floor of the building, which controls the lighting and variable air volume boxes (VAV) for the spaces. This will reduce the CFM output of the AHUs when spaces go into unoccupied mode during a normal occupied time.

There are 28 VAV boxes in the building. Each box and thermostat was inspected for proper operation and calibrated. Discharge temperature sensors were installed after all the reheat coils for monitoring leaking reheat valves on the third floor (20 VAV's) only. There were offsets put in for many of these temp sensors to read the actual temperature.

© [University of Illinois](http://www.uiowa.edu), Urbana-Champaign,
May 2013

www.fs.illinois.edu/retro



Project Highlights

- There were occupancy sensors installed in the third floor and basement to control lighting and air flow when the spaces were un-occupied.
- There were setback schedules implemented in the office areas during 7PM-7AM M-F, and 5PM-8AM Sat. Sun.
- There were VFD's and DDC controls installed on AHU2 (both SF and RF) in the north attic to reduce the constant airflow to spaces.
- Programming improvements on AHU1
- Chimney Capping Project scoped to stop unnecessary exhausting of conditioned air

Facilities & Services

Utilities & Energy Services | Retrocommissioning