

Main Library, #41

Building Gross Sq.Ft.: 530,700

Retrocommissioned: Sep 2011 —
Jan 2012

Simple Payback: 0.8 YRS

Annual Energy Avoidance: 38%
(Based on one year's non-normalized data)



Principal Building Use: Library Collection, Study and Office Space

Building & Occupant Overview

The Main Library houses several departmental library collections as well as study rooms, computer stations, classrooms, offices, and reading rooms. The Main Library that stands today was originally built in three sections with the first, second, and third sections being completed in 1923, 1925, and 1927. The facility has regularly scheduled hours, closing typically by 11pm. There are 27 constant volume air handling units (AHUs) which condition the building. The building's cooling needs are met by the campus chilled water loop, while the heat in the building is provided by a combination campus steam and hydronic systems. AHUs and heating systems have Siemens PXC and MEC DDC control, while the reheat and radiation devices are pneumatically controlled.

The facility's total metered energy during the previous year was 93,949 MMBTU.

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

E.U.I.	E.C.I. #1	E.C.I. #2*
109.9 kBTU / Sq.Ft.	\$1.68 / Sq.Ft.	\$480.20 / person

* - 1852 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. There were variable frequency drives installed on sixteen AHU's that allow summer/winter and unoccupied setbacks. The primary energy conservation method was scheduling AHU's off or with these setbacks during the unoccupied times.

To maintain comfort conditions all thermostats were inspected and calibrated. There were numerous spaces that were found to be heating and cooling simultaneously.

The addition of full DDC control to the AHU's and heat exchangers gave more opportunity for energy saving measures and much improved comfort control. This gives the capability to perform temperature resets on discharge air based on the return air humidity and temperature. It also allowed the chilled water usage during the winter months to drop drastically by taking advantage of the economizer mode.

The outside air dampers were replaced on AHU 4, 5 and 8 to eliminate stratification and prevent freezestat trips and chilled water usage.



Project Highlights

- Full DDC control was installed on all the AHU as well as the heat exchangers.
- Variable frequency drives were installed on 16 AHU's.
- AHU dampers were calibrated or replaced which resulted in a much improved economizer mode for winter cooling needs.
- Several heating valves were replaced because they were leaking through.
- There were numerous spaces found to be heating and cooling simultaneously.
- Bathroom exhaust is shutoff during un-occupied times.