Energy Conservation Initiative (ECI) Project Summary

Carl A. Kroch Library , Facility 2047A

What We Did: The project replaced chiller based dehumidification with heat regenerated desiccant technology, and provided a new dedicated outdoor air handler and metered ventilation air to the individual collection air handlers. Humidifiers were also replaced to reduce unwanted air heating and improve control. Variable speed drives were retrofit to all fans to provide variable airflow. Campus chilled water only provides sensible cooling with a much higher return temperature. Timer operated switches were added on all collection area lighting.

What It Cost: $1,100,000

How Long It Took: 12 months. Completed September 2012.

What We Saved: $94,000

What Are the Benefits: Environmental conditions in the collection spaces are much more stable which will extend the life of the collection materials. The new systems allow a much tighter control of outdoor air usage and associated energy consumption. Significantly reduced energy usage resulted from:

- separation of conditioning ventilation air from sensible heating and cooling;
- desiccant dehumidification for the low dew point desired;
- reduced recirculated airflow.

Our special collections environmental control systems are now state-of-the-art. For the preservation of rare books and manuscripts a stable environment is absolutely critical. This new ability to set and maintain critical temperature and humidity levels, within very small fixed limits, ensures our ability to preserve these cultural resources for generations to come, while simultaneously minimizing the energy used. It is a great example of that old "win-win" adage.

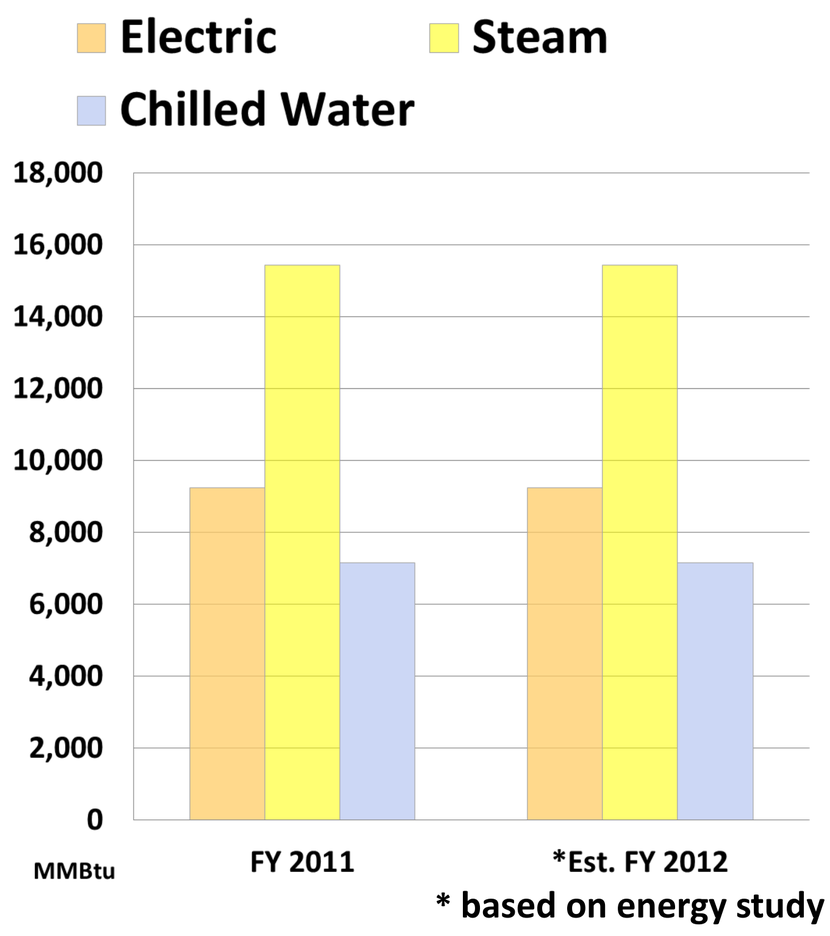
David Corson
Kroch Library Curator

Exhibit in Kroch Library

Map

Kroch Library Utilities Costs and Use

Kroch Library
Total Energy Use Pre & Post ECI



Kroch Library: ECI Savings Table

Utility	Historical Energy Use (MMBtu)	FY 2011 Energy Use (MMBtu)	Energy Savings (MMBtu)	% REDUCTION	Historical Cost (billed rates)	Est. FY 2012 Cost (billed)	Savings $	Equivalent # Homes
Electric	5,250	3,370	1,880	36%	$95,000	$61,000	$34,000	47
Steam	6,323	4,300	2023	32%	$164,000	$112,000	$52,000	22
Chilled Water	7,153	6,685	468	7%	$119,000	$111,000	$8,000	9
Totals	21,746	17,398	4,348	**21%**	$463,000	$367,000	$94,000	78

Energy use based on project scope

Equivalent # Homes Savings based on average home use: 40 MMBtu Electric ▪ 90 MMBtu Heat ▪ 50 MMBtu Cooling