

Energy Conservation Initiative (ECI) Project Summary

Duffield Hall Control Upgrade Facility 2000

What We Did: An energy study of this energy intensive laboratory building dedicated to nano-science found that many space controls were not functioning properly. New space controllers, network wiring, and logic upgrades now allow full functionality of control logic that varies laboratory and general space airflows and temperature setpoints based on occupancy. Relief air from general space conditioning now reduces mechanical room heated ventilation air.

How It Cost: \$820,000

How Long It Took: 12 months.

Completed March 2013

What We Saved: \$221,500 and 550 tons/per year carbon equivalent annually.

Benefits: Even though a building is relatively “new,” the controls can be outdated as was found in Duffield (vintage 2002). The new controls fixed a deferred maintenance

renewal issue and they will be repaid through energy savings. The new controls will reduce routine maintenance costs along with providing energy savings and increased laboratory safety.

This was a very challenging project to complete in a fully operational lab building, but we did the work as this project is critical to our efforts to reduce energy usage in our buildings with the extra benefits of decreasing maintenance and increasing safety. We are really happy with the results and the ability of the ECI team to work in a fully functioning highly complex laboratory environment.

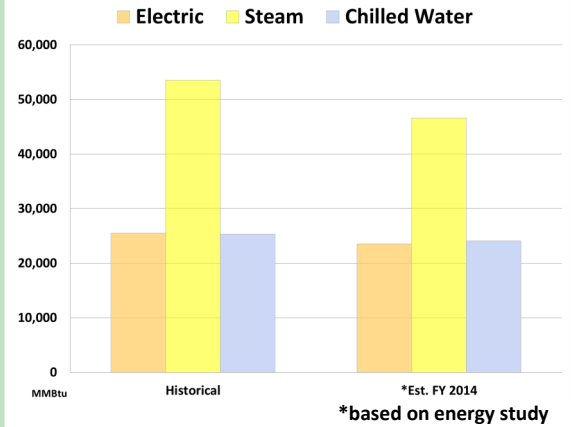
Bill Bader
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Duffield Hall



[Map](#)
[Utilities Costs and Use](#)

Duffield Hall:
Total Energy Use - Pre & Post ECI



Duffield Hall: ECI Savings Table

Utility	Historical Energy Use (MMBtu)	2014 Energy Use (MMBtu)	Energy Savings (MMBtu)	% REDUCTION	Historical Cost (billed rates)	*Est. FY 2014 Cost (billed)	Annual Savings \$	Equivalent # Homes
Electric	25,500	23,500	2,000	8%	\$523,600	\$482,000	\$41,600	50
Steam	53,500	46,600	6,900	13%	\$1,210,400	\$1,052,800	\$157,600	80
Chilled Water	25,300	24,100	1,200	5%	\$464,400	\$442,100	\$22,300	24
Totals	104,300	94,200	10,100	10%	\$2,198,400	\$1,976,900	\$221,500	154



Energy use based only on affected systems within project scope
Equivalent # Homes Savings based on average home use: 40 MMBtu Electric • 90 MMBtu Heat • 50 MMBtu Cooling

