

Energy Conservation Initiative (ECI) Project Summary

Biotechnology Lab Airflow Reduction, Facility 1018

What We Did: A computational fluid dynamics (CFD) model was used to evaluate ventilation effectiveness in existing fume hood laboratory spaces. The CFD modeling determined that we could improve ventilation effectiveness by changing supply and general exhaust locations and configurations.

The project changed air flow patterns and reduced room minimum air change rates per hour from 8/4 to 6/3 occupied/unoccupied.

A previous project had converted all laboratories to occupancy sensor based fully automated digital air flow control (2004).

What It Cost: \$169,250

How Long It Took: 4 months. Completed January 2011.

What We Saved: \$76,000 and 195 tons/year carbon equivalent annually.

Benefits: The project reduced average outdoor air flow by about 10,000 CFM. This reduction was in addition to the previous project which reduced average airflow by over 50,000 CFM. Reducing outdoor air usage decreases associated heating, cooling, and electricity usage.

Our energy conservation project has increased our lab occupants ventilation safety while reducing our energy cost.

Dick Clark,
Manager of Facilities,
Biotechnology Center

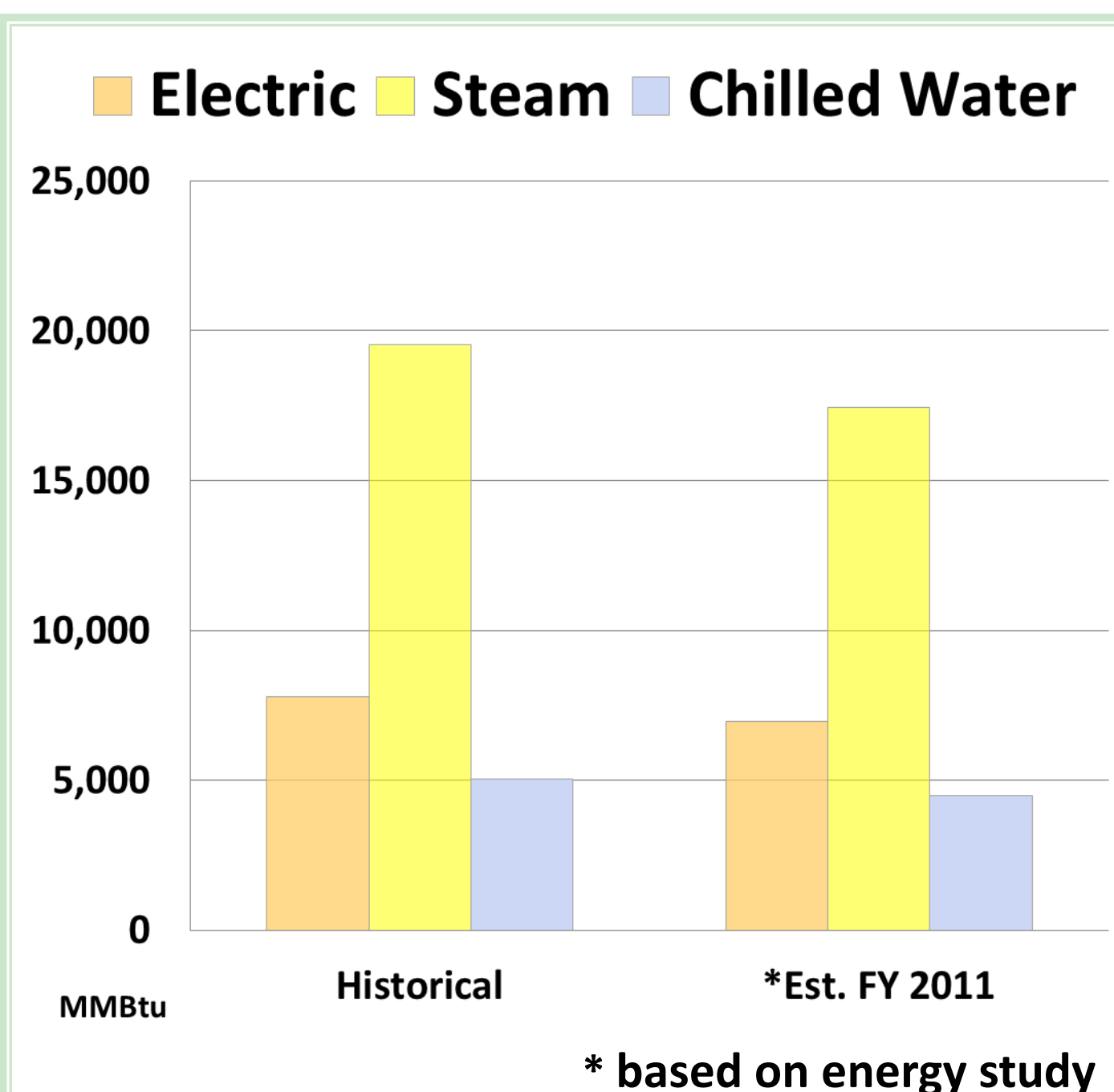
Biotechnology Building



[Map](#)

[Utilities Costs and Use](#)

Biotechnology Lab:
Airflow Reduction Total Energy Use
Pre & Post ECI

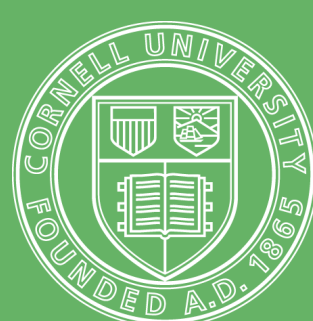


Biotechnology Lab Airflow Reduction: ECI Savings Table

Utility	Historical Energy Use (MMBtu)	Est. FY 2011 Energy Use (MMBtu)	Energy Savings (MMBtu)	% REDUCTION	Historical Cost (billed rates)	*Est. FY 2011 Cost (billed)	Annual Savings \$	Equivalent # Homes
Steam	7,799	6,961	838	11%	\$160,000	\$143,000	\$17,000	21
Electric	19,528	17,428	2,100	11%	\$458,000	\$409,000	\$49,000	23
Chilled Water	5,022	4,482	540	11%	\$92,000	\$82,000	\$10,000	11
Totals	32,349	28,871	3,478	11%	\$711,000	\$634,000	\$76,000	55

Energy use based on project scope

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



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