

Energy Conservation Initiative (ECI) Project Summary

Kinzelberg Hall, Facility 2032A

What We Did: We installed new digital space controls and upgraded the hood monitors and control sequence for each lab space. These new controls included new electronic Variable Air Volume (VAV) boxes, electric reheat valves, space motion detectors, variable frequency drives (on the fume hood fans), electronic space thermostats, discharge air temperature and hood sash monitors.

The new controls allow the supply and exhaust systems to operate together in order to reduce the lab air change rate when the space is not occupied.

New variable frequency drives were installed on the fume hood exhaust fans to adjust the hoods air flow (two positions) to reflect hood and lab usage, providing safe operating conditions for the researchers in the space.

A locally mounted space thermostat provides feedback to the control system to indicate whether space reheating is required. The discharge air sensor provides feedback to the control system preventing

the control valve from delivering more reheated air to the space than is required.

What It Cost: \$765,000

How Long It Took: 7 months. Completed June 2012.

What We Saved: \$181,000 and 575 tons/per year carbon equivalent annually.

Benefits: The new electronic control system replaced an outdated constant volume and constant space temperature system with very limited control capability. The new system allows temperature and airflow setback which minimizes utility usage.

This was a very challenging project to complete in a fully operational lab building, but we did the work as a team very effectively. This laboratory now has up to date controls, increased safety, and significantly less energy use. The nearly 30 year old systems are now ready for the decades ahead.

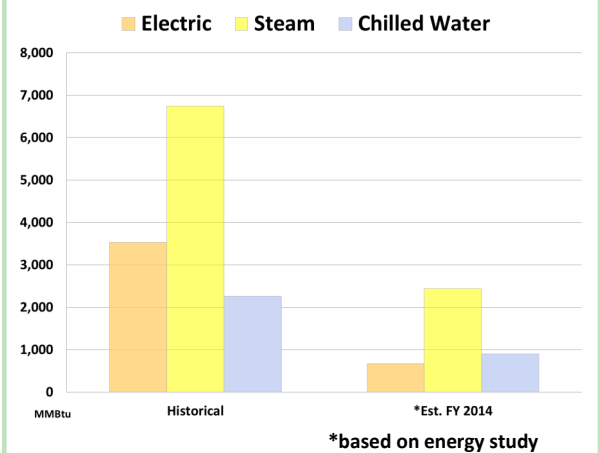
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Kinzelberg Hall



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

Kinzelberg Hall:
Total Energy Use - Pre & Post ECI



Kinzelberg 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 | 3,500 | 500 | 2,800 | 80% | \$73,000 | \$14,000 | \$59,000 | 70 |
| Steam | 6,700 | 2,400 | 4,300 | 64% | \$152,000 | \$55,000 | \$97,000 | 48 |
| Chilled Water | 2,300 | 900 | 1,400 | 61% | \$42,000 | \$17,000 | \$25,000 | 28 |
| Totals | 12,500 | 3,800 | 8,500 | 68% | \$267,000 | \$86,000 | \$181,000 | 146 |



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

