

Tackling campuses' greatest energy challenges—without compromising safety or the important work of research

Laboratories are typically the largest energy users on campus. They are also critical spaces with regard to air quality, as well as the highly valuable research they enable. GreenerU looks at all of it.

GreenerU ties together extensive experience working in laboratory environments with our proven approach to occupant engagement and behavior change. These components are balanced with the expertise of an environmental health and safety expert, who determines acceptable ventilation ranges in laboratory environments.

HELPING WORLD-CLASS INSTITUTIONS

GreenerU has worked to achieve substantial laboratory energy savings at Brown University, Brandeis University, Ithaca College, Worcester Polytechnic Institute, Mount Holyoke College, the MSPCA, and Yale University.



Open fume hoods are among the largest energy users in laboratories, as they ventilate large amounts of conditioned air out of the room.



Stakeholder engagement is an essential component of GreenerU's successes with laboratory efficiency

GREENER LABS: A THREE-PRONGED APPROACH

- 1. Lab safety evaluation.** Before making any energy-efficiency adjustments, GreenerU contracts a lab safety specialist to perform a professional air quality assessment.
- 2. Stakeholder engagement.** GreenerU works closely with lab users, facilities managers, and other stakeholders to understand how the needs and functions of laboratories can intersect with energy-saving opportunities.
- 3. Equipment optimization.** Fine-tuning, replacing, or recalibrating laboratory ventilation equipment is the third component of GreenerU's work with labs.

Campuses often see energy reductions of 20% or more from relatively small investments in laboratory efficiency.

GREENER LABS: A CASE STUDY

At Worcester Polytechnic Institute, the Gateway Life Sciences & Bioengineering Center (Gateway Labs), researchers engage in work that seeks to address complex problems and compelling questions that impact “local-to-global” communities.

Gateway Labs was an energy-intensive facility, however, before WPI partnered with GreenerU in 2013. The project scope included:

LAB SAFETY EVALUATION

- working with WPI’s Environmental Health & Safety personnel to re-engineer minimum acceptable ventilation rates, based on specific hazards
- rebalancing fume-hood flows

STAKEHOLDER ENGAGEMENT

- performing walking focus groups to learn how occupants interact with building features
- conducting stakeholder meetings to share information
- implementing a Shut the Sash campaign with customized visual cues

EQUIPMENT OPTIMIZATION

- recommissioning HVAC controls
- converting fume hoods to variable air volume (VAV), including new sash position sensors and controls
- recommissioning a glycol heat recovery system
- optimizing the building automation system
- repairing or replacing failed valve and damper actuators
- installing advanced LED lighting and controls
- installing two packaged cogeneration units

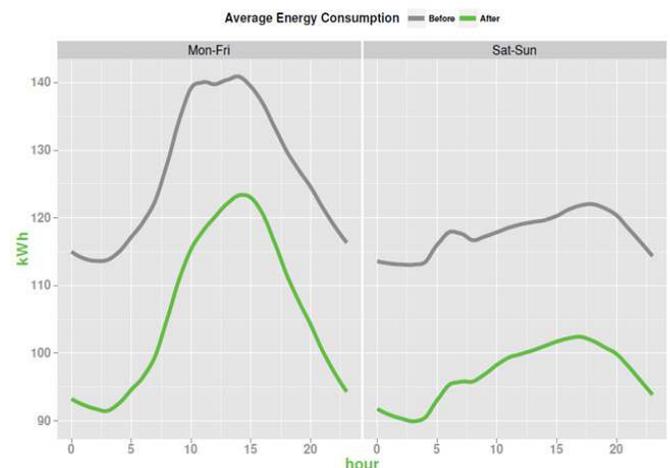
GreenerU’s work at Gateway Labs—financed in part through utility incentives—has resulted in reduced energy use by 13,600 MMBtu over 125,000 square feet. This is a more than 30% energy use reduction and \$177,000 in annual energy savings.



Shut the Sash visual cues helped Yale laboratory users understand how ventilation volumes affect energy use.

GREENER LABS BY THE NUMBERS

- 15 laboratory buildings with seven clients
- \$1.1 million in utility incentives
- 3,100 MTCO₂e in annual avoided greenhouse gas emissions
- 35,000 MMBtu in annual energy savings
- \$875,000 in total annual energy savings



Before and after Greener Labs: energy consumption in a LEED Gold biology lab