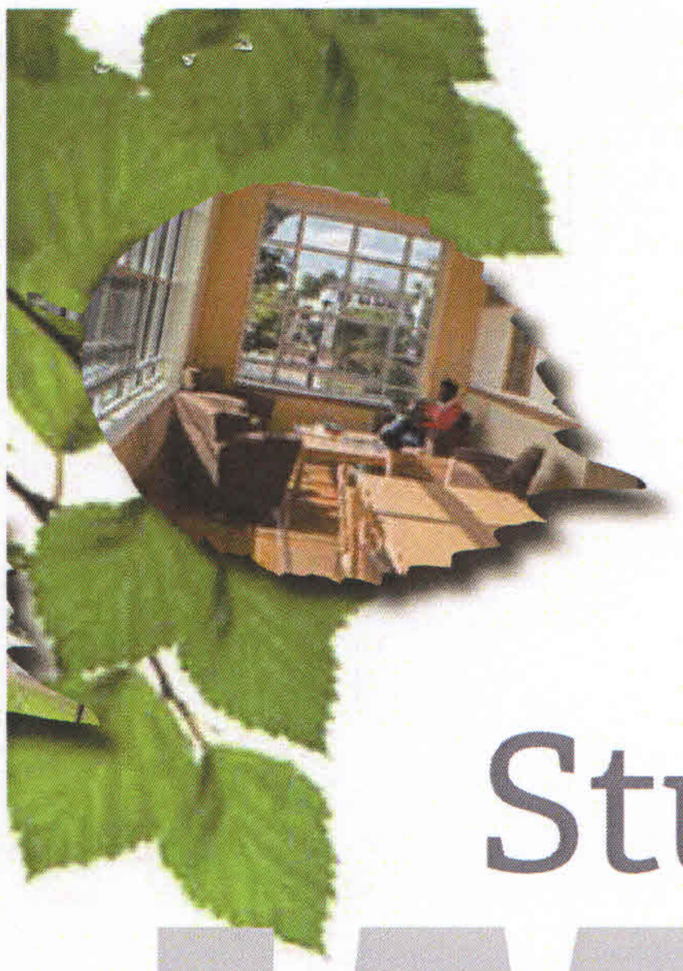


Students and Staff IMPROVE CAMPUS SUSTAINABILITY

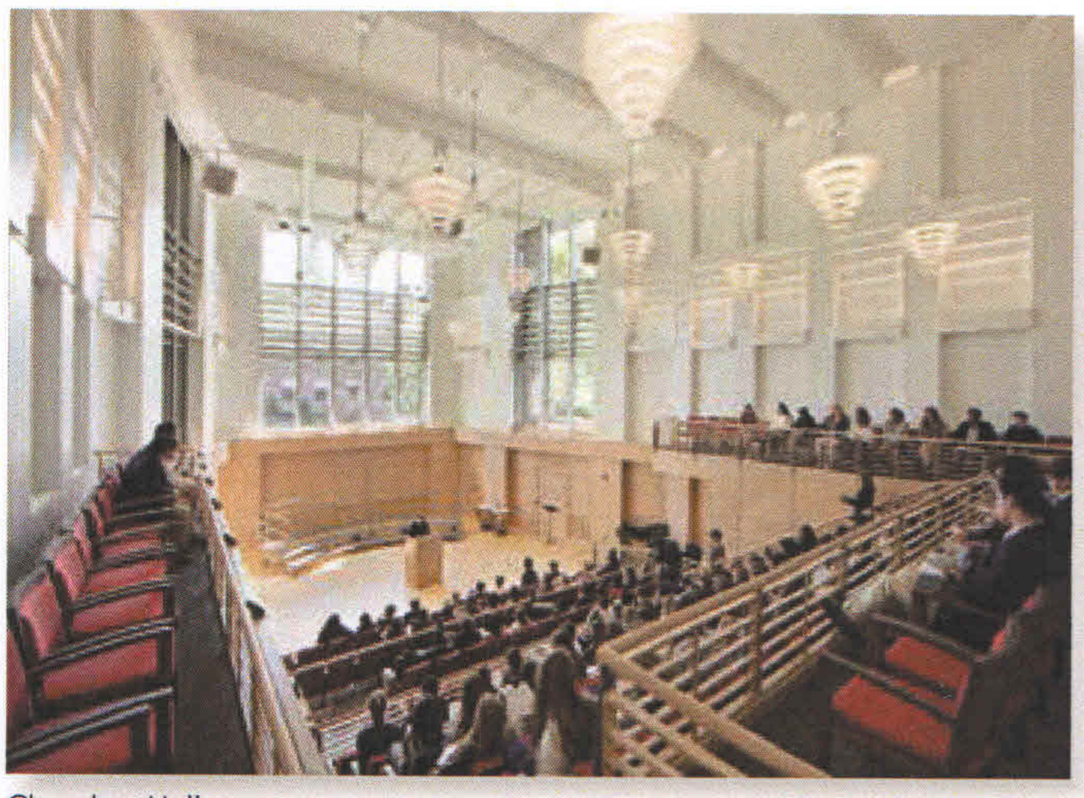
THERE IS SO MUCH INNOVATION, COLLABORATION, AND SUCCESSFUL OUTCOMES OCCURRING TODAY WITHIN EDUCATIONAL FACILITIES. We wanted to highlight a few campus projects that are leading the way and providing valuable, portable models to other colleges, universities, and schools throughout North America.

Following are 17 campus projects from 16 institutions, which barely scratch the surface of the thousands of energy and sustainability initiatives planned or underway every day at our campuses. Students, faculty, staff are alternately taking the lead or banding together to improve their campuses' energy efficiency, reduce costs, enhance the educational experience, and minimize the effects of their environmental footprint within the community. Also included is a description of LEED Lab, a project of the U.S. Green Building Council.

DEERFIELD ACADEMY

Deerfield, Massachusetts

Submitted by David Purington, Environmental Management Coordinator, Deerfield Academy



Chamber Hall.

WATER CONSERVATION: SUSTAINABILITY RESULTS YOU CAN MEASURE WITH A BUCKET

Deerfield Academy's sustainability mission statement reads in part that the school "will educate all its members on local and global impacts of personal and institutional choices, encouraging long-term thinking and modeling environmental best practices." Among our first initiatives was saving more water.

Our students are graduating into a world with a growing water crisis, and our classrooms routinely discuss this global theme. But we also know there are local implications. As a boarding school of 650 students in a small town, we are the largest user of our municipal water supply and wastewater systems. The majority of our water is pumped from a riverside well and travels several miles up to a hillside water tower far above the school.

For many reasons, we knew it was important to review our water usage, update our systems, and model best practices for our students and community. We hired a water conservation specialist to conduct an audit and help us craft a strategy for savings.

We are underway implementing recommendations from that audit, and over the past two years, Deerfield has lowered its demand by more than 2 million gallons per year—an impressive 15 percent. The majority of changes have been simple equipment substitutions and do not rely on behavior modification.

Here is what we learned:

- Frequently people think there is little room for further water savings. An expert consultant will help you find significant opportunities and strategies to show results fast.
- Many people are wary of high-efficiency fixtures and appliances. By doing our homework and testing different products, we found commercial-quality options that perform well, often while using less water than recommended by the U.S. Environmental Protection Agency's WaterSense guidelines.
- There is still a lot of opportunity for savings by making some easy changes:
  - » **Pre-Rinse Spray Valves:** Dining-hall prep food areas have very different needs—gentle sprays are enough for the salad room cleanup, while hard-hitting chisel sprayers perform better in the bakery. Working closely with dining staff, we found name-brand replacements that use between 0.65 gallons per minute (gpm) and 1.07 gpm.
  - » **Shower Heads:** As we are a boarding school, we have hundreds of showers in student and faculty housing. Finding a good, commercial-grade, low-flow shower head was important. After testing many, we opted for a 2.0 gpm model, but we seriously considered a 1.75 gpm model. With a projected payback period of six months, don't forget locker rooms!
  - » **Faucet Aerators**: Faucet flows should vary based on their purpose and location—kitchen faucet flows (2.2 gpm) are different than public bathrooms (0.5 gpm), which are different than private bathrooms in housing (1.5 gpm). The audit found that about 60 percent of our faucets could be improved by retrofits, with payback periods ranging from one to nine months.
  - » **Pint-Flush urinals:** On newer WaterSense fixtures flushing at 0.5 gallons per flush (gpf), you can often change the flush valve to 0.125 gpf for a 75 percent savings. Payback on valve-only retrofits was projected to be about two years. Full-fixture replacements of older, higher-flow urinals were projected to pay back in six to ten years.
  - » **High-Efficiency (HE) Toilets:** In faculty housing, we now install toilets using only 0.8 gpf during renovations. We do not use these toilets in housing with rusted cast-iron sewer lines or long sanitary drain lines in isolated areas of buildings, because of worries about downstream clogs.
  - » We were surprised by the use of **water-cooled ice machines** (projected payback period less than 1 year), and also by the aged fleet of washing machines in our **student laundry**.
- **Some things don't make the list.** With a 96-year payback, replacing old dishwashers in faculty housing isn't on our to-do list.
- **Facilities-related savings** are available in heating/cooling systems, irrigation, pool operations, and more. Include them in your audit and your modifications.