

WATER CONSERVATION TOOLBOX

CASE STUDY

Macalester College: Sustainable Landscape and Sustainable Buildings

PROJECT DESCRIPTION

In 2009, Macalester College developed a comprehensive Sustainability Plan. This plan focused on every aspect of the institution and laid out the steps the college would take to meet the college's obligations set forth by the American College and University Presidents Climate Commitment (ACUPCC). In terms of water conservation, Macalaster College's objective was to reduce the amount and improve the efficiency of water use on campus. To reach this goal, the college implemented three main water conservation projects.

The first project was to install low flow technologies in the newly constructed Markim Hall building, home of the Institute for Global Citizenship. As this was a ground up project, all the pipes in the building were designed to accommodate low flow technologies, including dual flush toilets, low flow toilets, low flow faucets, and low flow shower heads.

The second project was to install aerators on all the sinks on campus to reduce water use. This project was led by a Macalester student, Rosie Mate ('12), and involved many other students and staff during the implementation.

The third and final project, which is currently ongoing, is to replace the current landscaping with more well-adapted plants and native species and to provide better stormwater management practices. An example of this project can be found in the parking lot off of Cambridge Avenue behind the Facilities Services and Safety and Security office. The goal of the native landscaping is to reduce water and chemical usage.

PUBLIC INPUT

The Sustainability Office created an advisory committee made up of staff, students, and alumni to determine what projects to initiate and how to implement them. The committee held open meetings to get input from the entire campus.

Overall the public and students have responded well to all three projects. The campus community was very enthusiastic about the native landscaping and aesthetically it was a big improvement for the campus. According to staff members, there have been no complaints with any of the low flow technologies.

SUSTAINABLE LANDSCAPE & BUILDINGS

PROJECT OWNER + LOCATION

Macalester College
Saint Paul, Minnesota

Students, staff, and facilities were all involved in each of the three projects. The Clean Energy Resources Team's (CERTS) intern, Rosie Mate ('12), was specifically responsible for the aeration project.

TIMELINE

Start date: 2008

End date: Ongoing

The parking lot project shown below was installed through a grant from Capitol Region Watershed District. Image source: CDMSmith



DID THE PROJECT CHANGE WATER USAGE ON CAMPUS?

Aerator

There is an estimated savings of 2,962,500 gallons of water and 562,090 BTUs of energy per year for the aerator project.

Markim Hall

Markim Hall uses around 4,000 to 6,000 gallons less water per month than that of a standard building not using low flow technologies, as shown below. The standard building is based on building codes for structures of a similar location and size.

Native Landscaping

The plants are currently in an establishment period, and it is too soon to determine actual water and energy savings. It is anticipated that there will be no overall water savings as the turf that was replaced was not irrigated. While not achieving water savings, staff do expect to use less chemicals, gasoline to run the mowers, and labor to maintain the areas.

HAS THE PROJECT BEEN A SUCCESS? HAVE THERE BEEN ANY ISSUES?

Overall the project has been successful. Feedback from the campus community has been very positive and there have been very few issues with each of the three projects.

Aerators

The College has experienced some plugged sinks in the residence halls due to the reduction in the volume of water going through the drain pipes as a result of the new aerators. The residence halls are older buildings and the sinks have smaller drains which are not able to be fully flushed out due to the reduction in water flow.

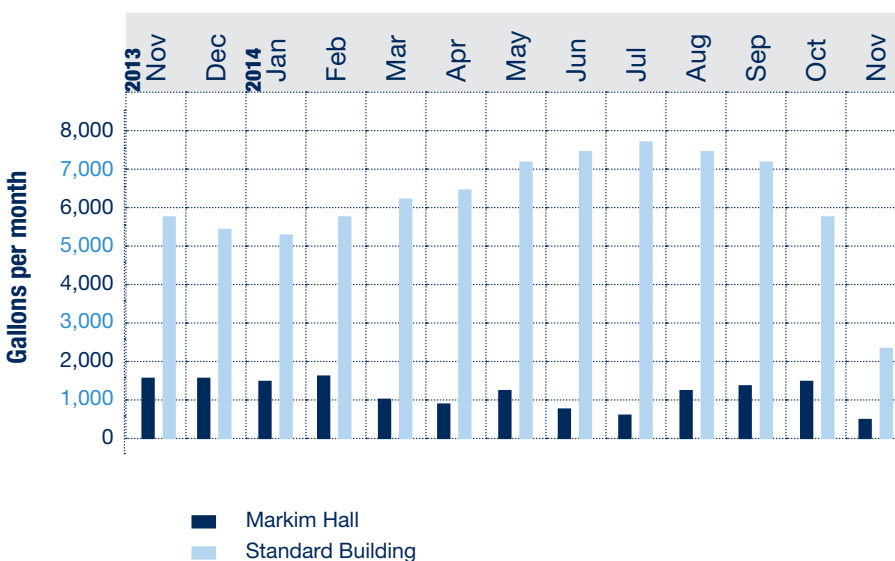
Markim Hall

There was a slight learning curve associated with use of the dual flush toilets as not everyone knew how to properly operate them. Flyers and stickers are now posted in the bathroom that provide instructions on the two flushing options and during tours for prospective students, the technology is highlighted.

Native Landscaping

The native landscaping is currently using more water than turf because the plants are in an establishment period and need regular watering. Once the plants are established, however, staff will return to the previous condition of no irrigation.

Monthly Water Use Comparison



SUSTAINABLE LANDSCAPE & BUILDINGS

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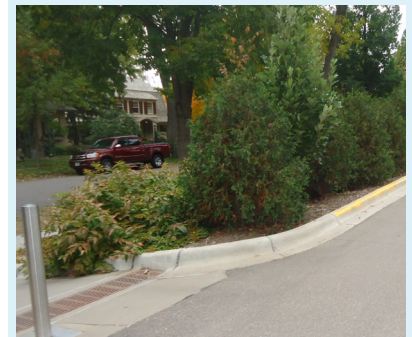


Image source: CDMSmith

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