

Water Conservation

It was seven o'clock in the morning when Charles Girard arrived at his office and prepared for another conference call with the design team. Charles, the facility manager, along with others from the Learning Gate Community School was in the process of designing additions to their school. During this call, the team discussed the options for implementing water saving features into the new school buildings. Realizing the multiple benefits of using such technologies, the team was excited to hear how the technologies would be incorporated into their project.

Learning Gate Community School is an exemplary case study of how implementing water saving technologies can yield multiple benefits and savings. When Learning Gate decided to expand its campus in 2009, the administration knew they wanted to incorporate many sustainable technologies. Water conservation was always a priority for the school leaders and the planners of the Learning Gate expansion project. Through the collaboration among all stakeholders, the team was able to implement innovative strategies, technologies, and learning opportunities within the new building and site design.

The Water Saving Technologies

Upon deciding to incorporate water conservation into the green school design, questions arose as to what water saving features would be used. The planners envisioned a system that allowed for user observation and one that would be simple to implement. Low flow water fixtures at all locations were a must; Learning Gate decided it would be educational and

advantageous to include a rainwater collection system. Rain barrels decorated by students collect rainwater from roofs of the new buildings and a 600 gallon underground cistern also stores collected rainwater. In addition, Learning Gate utilizes a grey water system to collect and clean for future use. At Learning Gate both grey water and the collected rain water are used to flush toilets and irrigate the native vegetation that can be found throughout the site and along the walkways from building to building. The native vegetation requires a minimal amount of water to survive. In conjunction with reclaiming water, Learning Gate has a school garden that uses the reclaimed water for students to grow their own vegetables.

With such impressive water reduction in place, Learning Gate was able to drastically downsize the infrastructure requirements for a building similar in size and use. Subsequently, Learning Gate was able to almost double the student population, increasing it from 350 students to 600, without having to perform major upgrades to the septic system.

The Benefits

The obvious benefit of implementing methods of water conservation is the reduced amount of water used. Learning Gate has toilets with a flush rate of 1.28 gpf and faucets with a flow rate of 0.5 gpm, both of which go beyond the flush and flow requirements set by building code. Combined with the use of rain and grey water, Learning Gate was able to achieve a water savings of almost 74% over a baseline case.

In conjunction with water reduction efforts, educational opportunities related to water conservation are present, and are as impressive as the conservation principle they demonstrate. Water bladders placed beneath the new classroom buildings offer the students a dynamic, visual model. When someone flushes a toilet, the bladder deflates, demonstrating to

PLATINUM



Students annually decorate rain barrels around the campus. Captured rainwater is used to irrigate gardens.

BY THE NUMBERS

Toilets	1.28 gpf
Faucets	0.5 gpm
Rain Collection	600 gal.

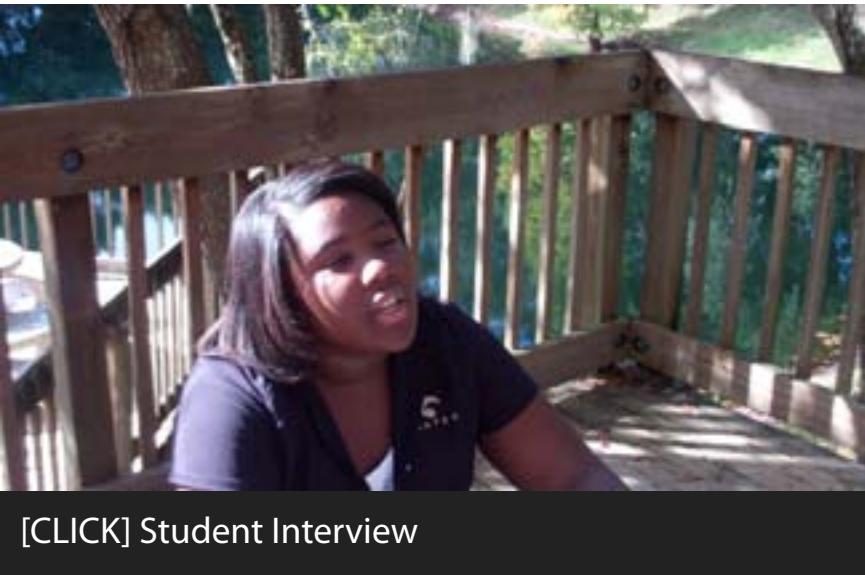
Annual Water Savings:
74% over baseline

Preserving existing septic system:
\$70,000 savings

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Educational Materials Related to this Case Study



[CLICK] Student Interview



the students how their actions directly impact water supply and water use. Rain collection barrels located at the end of the downspouts near the entrance to buildings are beautifully decorated by students with paintings that emphasize the importance of water use reduction. With the water saving technologies so overtly visible, teachers at Learning Gate are proudly able to use the various situations as examples when teaching students about the importance of conservation and natural processes.

Municipal code often governs building occupancy limits based on wastewater thresholds, yet with such impressive water reduction in place, Learning Gate was able to drastically downsize the infrastructure requirements. Without water saving features, Learning Gate would not have been able to significantly increase their enrollment. Learning Gate was able to almost double the student population, increasing enrollment from 350 students to 600, without having to perform major upgrades to the septic system. The existing septic system was able to handle 5,000 gallons per day, however with the water saving technologies in place, in 2011 Learning Gate produced just over 1,000 gallons per day. Not needing to upgrade the septic system saved construction time and efforts, as well as nearly \$70,000 in costs.

From the beginning stages of the school 's design, Learning Gate planners were devoted to being as sustainable and innovative as possible, while being conscious to the construction budget. With the input of faculty, students, and community members, the design team made a commitment to incorporating water saving technologies into the expansion project. Along with reducing their ecological footprint on an already rapidly diminishing resource, the team knew the benefits would go beyond conservation. First and foremost, Learning Gate is an educational facility and with the water saving features in place, students and faculty alike are able to become a part of the water reduction process, witness their efforts first hand, and have the opportunity to teach and learn about water through their innovative buildings and grounds.

Additional Resources

- [Why is water conservation important?](#)
- [Learn more about rainwater collection](#)
- [Learn more about greywater](#)
- [Water conservation tools and resources](#)