

Redefining the 3 "R's": Water Conservation on the UAB Campus through Retrofits, Recycle, and Reuse

On April 10, 2009, a walkthrough of the Miller Gorrie Building Science Center, a LEED Gold-certified building on the Auburn University Campus, was conducted as part of a Sustainable Engineering Design class project. During this walkthrough, it was noted that the building saves up to 41% of its water through means such as low-flow toilets, waterless urinals, and sinks that have meshed faucets to produce a large amount of air bubbles in the effluent water. With this in mind, during lighting surveys of UAB buildings, a tally of sinks, toilets, urinals, and water fountains is currently being taken as a side project to determine how much water the UAB Facilities Management Department could conserve if these fixtures were upgraded to specifications similar to those in the Miller Gorrie Center in Auburn, and what the approximate payback for these fixtures would be. To date, two buildings within the School of Engineering and the School of Dentistry building have been chosen for this study. Also, some buildings on campus already employ such fixtures; in the men's restroom of the new Starbucks café, there is a low-flow toilet rated at 1.28 gallons (4 liters) per flush. The aim of this project is to estimate how much in water bills the fixture currently saves the building, and to apply that to other buildings on campus if the fixtures are replaced with low-flow counterparts, and then project how long it would take to offset the costs of such upgrades in water fixtures. One of the green initiatives of the Facilities Management Department on the UAB campus is to minimize or lower the consumption of the utilities such as energy and water. The ever increasing consumption of water throughout the university campus buildings is a concern along with energy. This presentation will discuss the different water conservation methods which could be employed on campus to promote a green and sustainable environment on campus. The storm water runoff from the parking lots can be collected and used for flushing the toilets during the short period just after the rain with minimal infrastructure. By doing this, there will be less consumption of the treated water drawn from the local service provider. The impervious parking lots are a big obstacle in recharging the ground water table. It is recommended to build a pilot pervious parking lot to study and understand its effectiveness in controlling surface runoff in parking lots and controlling seepage of contaminants in to the ground. The University of Rhode Island has successfully built pervious parking lots throughout their campus to promote sustainability using pervious materials and this case study will be discussed in the presentation. Due to insufficient water usage data, it is currently not possible to provide the total savings in terms of dollars. The water saving recommendations based on the three R's (Retrofit, Recycle and Reuse) are suggested to the UAB Facilities Management Department to make the UAB campus green and sustainable.

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