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Implementing Efficient Laminar-Flow Showerheads

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Implementing Water Efficient Laminar-Flow Showerheads



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Introduction

Water, being a central component for all life on Earth, should not be taken for granted. Although seemingly limitless, fresh potable water is finite and we must do our part to conserve the water supply to prevent exhausting the resource. Every day, each person uses about 80-100 gallons of water in the U.S. (U.S. Geological Survey). A shower is oftentimes an integral part of a person's day. It is to no surprise, then, that the shower is one of the largest use of household water at approximately 17.2 gallons for 8.2 minutes at a flow rate of 2.1 gallons per minute (gpm) (Alliance for Water Efficiency). The showers in the Lewis University Field House was experimentally calculated to be about 1.5 gpm. Replacing our current showerheads with new 1 gallon per minute showerheads will significantly cut down on Lewis University's water usage.

Implementation Plan

Lewis University houses approximately 1,200 students (Lewis University). Let us assume there are 600 showers every day. After measuring the flow rate of the showers from the locker rooms in the Field House and by using the average shower time extracted from data by the Alliance for Water Efficiency, Lewis University uses approximately 7,380 gallons of water every day on showers alone. In order to conserve water, the showerheads at Lewis University should be replaced with showerheads with a max flow rate of 1 gpm. Simply by replacing old showerheads in dorms and locker rooms with new water efficient showerheads, Lewis University has the potential to save about 67% of the water used from showers. This will contribute to Lewis University's commitment to making a significant reduction in our environmental footprint in the world.

In 2012, the University of Southern Main upgraded over 300 showerheads in student dorms. Besides saving on water usage, the University also saved on the amount of natural gas needed to heat the water and the project was paid back with cost savings in a little over four months (GreenBillion). Bricor, a company that manufactures water efficient showerheads, was contacted for a quote of one of their 1 gpm showerheads. The retail price for that unit was \$74.95, but because there is a bulk order discount, the price would be lowered to \$64.95 which is a 13% savings. The showerheads would be expected to pay itself back in savings before the end of this year.

Conclusion

Switching to low-flow showerheads not only conserves water but it also provides significant savings by the end of the year. Showers take energy to heat the water, therefore cutting water usage also cuts down on the energy use. Doing our part and conserving water can go a long way to reduce environmental stress. Replacing 1.5 gpm with 1 gpm showerheads at Lewis University may seem insignificant, but when it comes to conserving water, seemingly small adjustments can have a substantial impact in reducing our ecological footprint.

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