United Energy, LLC

A Water Conversion Case Study

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The Michigan Prison System
Toilet and Urinal Renovation

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"It is estimated that the thousand (plus) toilets the Michigan prison system converted to use CONSERVACAPS are now currently saving over 3,000,000 gallons of water annually."

Description:

In an effort to save water the Michigan prison system recently installed over a thousand CONSERVACAPs in the prison's existing flushometer toilets and urinals.

The project, which was spread over four different prisons, was easily accomplished and proved to be an inexpensive and very effective way of acquiring substantial water savings for minimal costs.

Goals:

The primary goal of the project was to use a particular toilet and urinal renovation procedure to establish whether or not it could provide a reasonable low-cost solution toward reducing prison water consumption.

While the projected cost of the project was fixed at a minimal $32.00 per fixture (allowing $22.00 for parts and $10.00 for labor) the water savings needed to be substantiated and the performance of the fixtures post-renovation needed to be verified.

In all water renovation projects the most important requirement of a conversion is ***functionality***. In all cases, the performance of the renovated fixture should be equal to or better than before conversion.

Solutions:

The project consisted of performing the regular routine maintenance of replacing the internal working parts in all of the Sloan and Zurn toilets and urinals with new ones.

In addition to using the standard Sloan or Zurn replacement kits, a special water-saving inner cap called CONSERVACAP was also installed.

Components:

CONSERVACAP (aka: the inside cover) was developed by HydroEnhanced Labs to provide an interim solution to reduce water consumption in both flushometer toilets and urinals, without having to replace the entire fixture. A separate cap is available for both toilets and urinals.

The **CONSERVACAP** for toilets, when installed with a Sloan A-38-A kit, will reduce the water used in that toilet from 3.5 gallons per flush (GPF) to 2.75 GPF

The **CONSERVACAP** for urinals, when installed with a Sloan A-37-A kit, will reduce the water used in that urinal from 1.5 GPF to 1 GPF.

CONSERVACAP comes with a manufacturer's 5-year warranty and can be easily installed, along with the other replacement parts, in less than 20 minutes. This type of conversion provides a smooth, flawless performance for renovated fixtures.

Results:

Based on the savings generated by this installation of CONSERVACAP, the Michigan prison system is currently saving well over 3,000,000 gallons of water annually.

Depending on current water/sewer rates, the retrofit should produce a Return On Investment (ROI) from 56% (at $6.00 per thousand gallons) to 112% (at $12.00 per thousand gallons)

Environmental:

What this project provides is an alternative solution for companies who wish to take a positive step toward saving water but don't yet have the capital to install new low flow fixtures.

Also, in some cases, older facilities with plumbing systems that are decades old can't afford to reduce the liquid content of their sewer flow and risk the chance of a major system clog up. A four-inch sewer pipe that is 50 years old no longer has that same four-inch carrying capacity that it did when it was new.

In many older Historical Landmark Buildings, such as the Miami Beach City Hall and the Albuquerque City Hall, conversions to 1.6 GPF *Low Flow* toilets resulted in plumbing blockages and total shutdowns of the system. These failures ultimately required a total replacement of each of these building's entire plumbing system.

For these reasons, older school campuses, such as Purdue University, Central Michigan University, and Southern Illinois University have made substantial CONSERVACAP renovations within their facilities.

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