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PRISON FACILITY PLUMBED FOR COST SAVINGS WITH GREYWATER FILTRATION SYSTEM

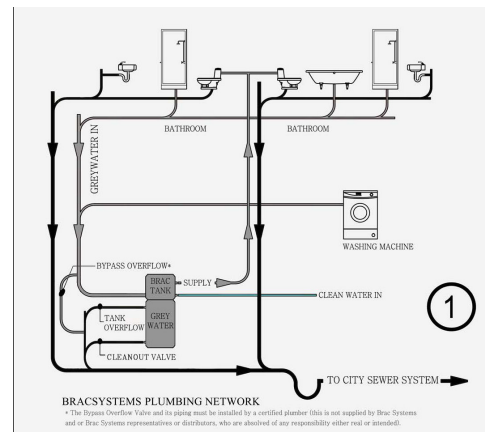
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by Angelle Bergeron

By this time next year, construction will be complete on the \$105 million, 1,668-bed prison in Adams County, Miss. Thanks to the decision by owner Corrections Corporation of America (CCA), the new facility will feature a greywater filtration system that will decrease overall water usage by as much as 30 percent.

“We’ve been investigating using greywater systems for the last 18 months and decided to pull the trigger on this one at Adams,” said Budea Johns, CCA’s senior director of project development.



Greywater Basics

Greywater is the water collected from the use of the shower, bathtub, hand sink and laundry facilities—all the water that doesn’t include food or fecal matter. In a residential home, roughly one third of the water used is for flushing the toilet. In a commercial or correctional setting, the savings can be tremendous. “Obviously, 1,500 inmates using water 24 hours a day is a lot of water,” Johns said. CCA is the nation’s largest owner and operator of privatized correctional and detention facilities and one of the largest prison operators in the country, behind the federal government and three states. In addition to the Adams County facility, CCA owns and operates 65 facilities, including 75,000 beds, in 19 states and the District of Columbia. Installing greywater systems at all CCA’s facilities would represent a “significant impact on usage, and the environmental impact of saving water will become more and more significant nationwide and worldwide,” Johns said.

The System Mechanics

Although it researched a number of manufacturers that have greywater filtration systems, CCA chose Brac Systems, an Ontario-based company, for several reasons. “Brac has excellent technology,” Johns said. “It is already UL approved and approved by the state we are doing business in.” Once the greywater enters the Brac system rather than the sewer, it flows through

a filtering system into a temporary holding tank where it is chlorinated, explained Dennis Yasar, president of Brac Systems. “The computerized timer system cycles the water through the chlorination system several times a day,” Yasar said. The final product is eventually rerouted back to the toilet tank. The water will appear clear, but may be a little foggy, depending upon water hardness. “Wherever there is food or stool, we do not recycle because the food would start smelling in the filter and the stool could cause serious problems, like E-coli,” Yasar said.

All of the treated greywater is used for flushing only, which is safe and reaps enough savings, Yasar pointed out.

Routine maintenance includes adding chlorine tablets and cleaning out the filter, which Yasar equates to cleaning out the lint filter in a dryer.

The Rate of Return

The Brac system is available in residential and commercial models. The commercial filtration systems are available in three sizes—4,200/5,000/6,600 liter sizes (1,110/1,320/1,745 U.S. gallons).

The sizes vary according to application, and don’t differ greatly in price, Yasar said. “Your rate of return on investment depends upon where you’re located, but naturally, the commercial [model] will be paid off faster than the residential one.” At Adams County, CCA invested about \$600,000 on a Brac system that will last at least 50 years, Yasar said. “The tank is good for 100 years, pump warranty for one year and other parts for 50 years,” he said.

Although the owner won’t disclose his exact cost and usage amounts, Johns did say that CCA expects it will take 42 months to realize a return on the investment.

The fact that the Adams County facility is new construction made it a better candidate to test the greywater system, Johns said. “With a retro-fit, we’d expect a 52-month return.”

CCA plans to monitor the results at Adams and explore installing similar systems at other facilities around the country, particularly those in more arid climates.

Making a Difference

Brac Greywater Recycling Systems was named one of the Top 10 Green Building Products for 2007 by *Sustainable Industries Journal* and the Best New Product in the energy efficiency category by Mecnex Climatex 2007, Yasar said.

Development of the three-year-old system is the dream of a lifetime for the former mechanic. He was on vacation with his wife and told her that he wanted to do something no one has done before. “I always wanted to do something special,” Yasar said. “If you talk about 300 million U.S. citizens on this continent, and only 20 million use this system—the amount of water saved per day could be enough drinking water for that 300 million.”

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