United Energy Associates, Inc

A Water Conversion Case Study

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Munroe Regional Medical Center
Ocala, Florida

"Our plumbing was a mixed bag of different type fixtures; so we were very impressed to find out that for only an extra year in payback (3 years instead of 2) we could convert our old Coyne/Delaney's over to Sloans. Now, we not only have the savings, but we have uniformity throughout the facility." - BILL DUNCAN, Asst. Dir. Engineering'

Description:

Munroe Regional Medical Center (MRMC) is a 323 bed "Acute Care" facility founded in Ocala, Florida in 1898. The hospital is the largest non-governmental employer in Marion County and its reputation within the Florida health care industry is impeccable. MRMC is "community owned" and its total charitable care and community service contributions as of 1997, which exceeded $17.9 million, provide a wonderful success story in a very competitive industry.

Retrofit Goals:

The MRMC staff had been considering a water conversion for several years, but were concerned with how a reduction in water use might affect the performance of their existing fixtures.

It was decided that the target amount of reduction would be determined by first establishing the amount of water required for optimum functionality of the existing system. For MRMC's fixture type and water pressure, 2.6 gallons was considered necessary for optimum performance.

Of the 346 flushometer toilets targeted for retrofit, 184 were older Sloan models, and although in excellent working order, these units were using over 4 gallons of water per flush. These toilets were scheduled to receive UEA's standard flushometer conversion, designed to increase the functionality of the unit while reducing its water use to 2.6 gallons per flush.

The hospital's remaining 162 toilets were older model Coyne/ Delaney's, which required a considerable amount of ongoing maintenance. For this reason, it was decided to replace them with new Sloan flush valves. These new replacements were also tuned to use 2.6 gallons per flush.

In addition to the flushometers, 28 tank type toilets, located in administrative areas, were also targeted for retrofit. These units, using over 4 gallons of water per flush, were converted to use 2.5 gallons.

Along with the toilet conversions, 462 special vandal proof moderators were installed on existing sink faucets to reduce the water flow from 2.5 gallons per minute to 1 gallon in the bathrooms and work areas and from 2.2 gallons to .5 gallon in all public restrooms.

Constraints:

The major constraints of the project were access to the units and water controls for emergency situations. MRMC's head plumber agreed to travel with the UEA retrofit team to turn off and on main valves and to react to any emergencies that might arise. A 10% (of the total project cost) contingency figure was added to the conversion proposal in the event of unforeseen circumstances, such as broken pipes or fixtures.

Results:

The conversion was performed in three weeks, as scheduled, and the 10% contingency fund was unused. Total water savings for this retrofit conversion are projected to be 278,000 gallons per month or over 3,300,000 gallons annually. Of this total annual savings, it is estimated that over 600,000 gallons of water required heating. Energy savings for just this hot water reduction alone are projected to save MRMC an additional $4,918 annually.

Response from the hospital staff has been extremely positive. Those few toilets that had been causing problems by short flushing were adjusted to work perfectly and downstream maintenance has been reduced and simplified by converting to an all Sloan system and using all UEA certified long lasting components.

Environmental:

MRMC has signed a *Memorandum of Understanding* with the Environmental Protection Agency to become a member of the EPA's WAVE Program. The hospital's commitment to reduce its domestic water consumption to a "functionality maintained" absolute minimum was also recognized by the Institute for Energy Information (IEI).

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