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**Water Conservation with Caroma
High Efficiency Toilets and Urinals
Product Focus: Kitchen & Bath**

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Cover Story

Water Conservation with Caroma High Efficiency Toilets and Urinals

Easy maintenance, easy water savings

Water is the world's most precious resource. However, even though most of the Earth's surface is water, it is estimated that only 1% of it is usable (97% is salt water and two percent are icebergs and glaciers). It is critical that we conserve water now in order to maintain and increase the amount available for our future use.

Some countries have been experiencing drought conditions for many years and have mandated water conservation techniques. Because of population growth, drought conditions, and water restrictions throughout North America, high efficiency toilets are gaining in popularity.

In 2006, WaterSense, a partnership program sponsored by the U.S. Environmental Protection Agency, was formed to identify products that not only conserve water (at least 20% more efficient than the national standard of 1.6 for new construction) but also are high performance. Because the WaterSense program is a third-party testing and certification process, customers can be confident that toilets that are WaterSense labeled save water and perform well. Some cities in North America now mandate HETs (maximum 1.28 gallon per flush) rather than the 1.6 gallon per flush mandated by federal law.

Toilets account for at least 30% of indoor water usage. Installing a high efficiency toilet (HET) is an inexpensive and easy way to reduce water use in the house. Caroma created dual flush technology in the 1980s and has been striving to lower the water use ever since. The Caroma Smart™ Technology is leading-edge. It has been developed and mastered over the last decade, delivering the ultimate of design, water savings, and performance in bathroom fixtures.

With Caroma's high efficiency dual flush toilets, you don't need to trade flushing performance for water savings. It's not simply a matter of taking an existing toilet and reducing the amount of water used. Caroma's toilets are designed to work together as a complete flushing system that takes into consideration waste removal as well as proper drainline carry out.

Using gravity flush "washdown", this system delivers more energy from less water and pushes (rather than siphons) waste out of the bowl, quite simply making the water work harder and more efficiently.

All 45 Caroma floor-mount toilets are WaterSense labeled, using at least 20% less water than the current federal standard while still providing equal or superior performance. The water savings for a family of four that simply replaces an older water-consuming toilet with an HET could amount to 10,000 - 30,000 gallons of water in one year alone.

It's a simple two button flushing system. The reduced flush button releases 0.8 gallons per flush (gpf) for liquid and paper waste. Depending on the model, the full flush button releases 1.28-1.6 gallons per flush for solid waste. This can save up to 44% more water than the standard 1.6 gpf single flush toilet and up to 74% more water than a 3.5 gpf single flush toilet.

Caroma also is a major supplier of high efficiency urinals. In October 2008, the H₂Zero waterless urinal was launched, utilizing breakthrough technology which uses zero water for optimum perfor-



Caroma two button dual flush = easy water and cost savings.

mance and water conservation. The H₂Zero's unique patented cartridge technology does not use an oil-based seal, as traditionally used in waterless urinals. Within the cartridge is a Bio Fresh deodorizing block that is activated during use. The Bio Seal™ allows urine to pass through the seal freely, eliminating unnecessary waste build-up within the cartridge. The Bio Seal, which lasts up to 10,000 uses, also acts as a one-way airtight valve to seal the cartridge from the drainage system.

The Cube³ Ultra urinal introduces Smart Demand with a liquid-sensing automatic flushing mechanism that detects usage rather than motion to activate the electronic flush valve, eliminating accidental flushing. The smart controller automatically reduces flushing frequency during periods of high use.

Businesses and households enjoy other features of Caroma toilets. For example, the trap size is nearly double the North American standard, enabling the system to virtually eliminate clogging and double flushing. Additionally, Caroma 270 toilets come with an adjustable offset connector for 10"-12" rough-ins that accommodate rough-in variations and make the toilet ideal for retrofits and renovations. The unique style and clean lines also provide for easy cleaning.

Cover Story

Affordable housing units saving water and money

In South Florida, 90 percent of the water used in homes and businesses comes from groundwater sources, which is replenished by rainfall. Even though Florida is one of the wettest states, much of the water is lost through evaporation. South Florida, like many regions, is experiencing population growth combined with multi-year droughts. This has led cities and governments to implement water conservation programs and suggest techniques for conserving water to address the long term needs of the region.

It is estimated that 30% of the water used in a home is used by toilets. Homes built in the 1950s and 1960s often had toilets using seven gallons or more of water per flush. By the 1980s, technology had improved to use 3.5 gallons per flush. In 1995, a 1.6 gallon or less toilet was mandated in all states in the United States. Toilet technology has advanced considerably in the last 20 years, and now the average household can save thousands of gallons of water in just one year.

Located in Dania Beach, College Gardens Apartments is a complex with more than 60 affordable housing units. During late 2008, Caroma toilets were installed in three buildings, including 24 three bedroom, two bathroom units to help conserve water in the region. Two models of the Sydney range high efficiency dual flush toilets were chosen (Sydney 270 Easy Height Elongated and 305 model Round Front Plus).

Caroma toilets were selected for College Gardens Apartments for three reasons: water conservation to protect the environment, to reduce water bills, and lower maintenance costs. Prior to the Caroma installation, some apartments had 3.5 gallon per flush toilets, 2.5 gallon per flush, and 1.6 gallon per flush toilets.

The Sydney toilet range is a two button dual flush: one button using 1.6 gallons per flush for solid waste and one button using 0.8 gallons per flush for liquid and paper waste. The average flush volume is only 0.96 gallons per flush, saving 40% more water compared to the federal mandate of 1.6 gallons, 62% more water than a 2.5 gallon toilet, and more than 72% water savings compared to a 3.5 gallon toilet.

The water savings in College Gardens Apartments have been impressive. 16 units had toilets installed during October and November 2008, and the remaining 8 were completed in December. The graph below displays the water usage and costs from mid-April 2008 – mid-April 2009 for the 24 units.

During the first six month period recorded, the average water usage was 272,167 gallons at a cost of \$2452 per month. The following six month period during and after the Caroma installation was completed, there was a 45% reduction in water usage. The average water



Caroma was chosen to conserve water at College Gardens Apartments.

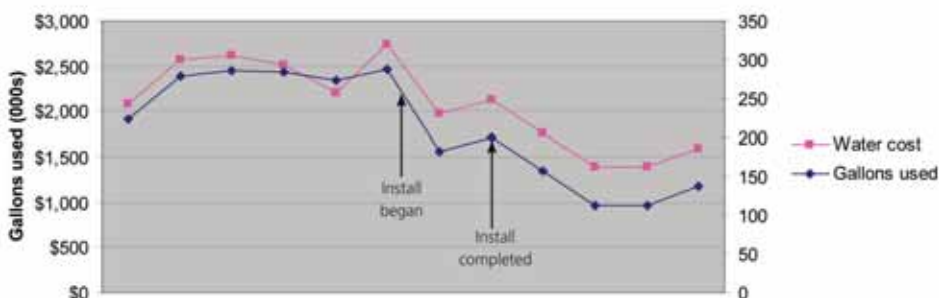
used was 150,667 gallons, averaging \$1704 per month. This equates to an average of 121,500 gallons in water savings per month (more than 1.46 million gallons per year) and nearly \$9000 in yearly cost savings!

In addition to water and cost savings, Caroma toilets also reduce maintenance expenses. The two piece Sydney toilets have a large trapway, nearly double the industry average. This virtually eliminates clogging. In the six months the toilets have been installed at College Gardens Apartments, there have been no calls to maintenance due to overflows or clogging. Because the toilets use washdown technology, waste is pushed from the bowl, creating greater drainline carry, minimizing the chance of blockages further down the pipe.

All Caroma floor-mount toilets are WaterSense labeled. WaterSense is a partnership program sponsored by the U.S Environmental Protection Agency to label products that meet both water savings and quality criteria. The Sydney range used at College Gardens has met the criteria of this program.

Tenants have also benefited from the Caroma toilets. The stylish toilets have clean lines, so cleaning is very easy. Because the toilets are virtually clog-free, they do not need an unsightly plunger nearby. The best part: they are helping to substantially reduce the amount of indoor water usage with every push of the Sydney dual flush toilet button.

2008-2009 Savings



Significant water savings with Caroma dual flush HETs

Cover Story



Hilton Palacio saves millions of gallons of water for San Antonio

The Hilton Palacio del Rio hotel is located on the famous River Walk in beautiful downtown San Antonio, Texas and is surrounded by cultural and historic attractions. With more than 480 guest rooms, the hotel provides an enjoyable experience, whether traveling for business or pleasure.

The Hilton Palacio realizes the need to conserve water for both environmental benefits and cost savings. Brandon Leister, Conservation Planner for San Antonio Water System (SAWS), approached the Hilton Palacio with a High Efficiency Toilet (HET) retrofit package. The goal was to replace the five gallon single flush toilets with high efficiency toilets. SAWS has chosen the Sydney range from Caroma as their industry standard option for water-conserving toilets.

The Sydney two piece toilets are two button dual flush. This allows for considerably less water consumption per flush than a single flush 1.6 gallon toilet. The two buttons give the user the choice of 1.6 gallons for solid waste or 0.8 gallons for liquid and paper waste. The Sydney range also has large trapways, virtually eliminating blockages. Additionally, all

Sydney toilets are WaterSense labeled. As of June 2009, 45 Caroma toilets (more than any other manufacturer) have been approved for the EPA's WaterSense labeling through rigorous third-party tests for performance and efficiency.

Leister explains, "After reviewing several options for high efficiency dual flush toilets, we have chosen the Caroma Sydney range. We've been installing them for more than one year, and the Hilton Palacio was one of our first installs." SAWS presented the Hilton with compelling, calculated savings. Included in the savings were a reduction in water consumption and staff time to fix toilet problems (blocking, overflow, etc.), ultimately keeping more rooms available for occupation.

Wayne Russell, Assistant Director of Property Operations at Hilton Palacio, reviewed the SAWS proposal for the High Efficiency Toilets and knew it was the way to go. "Considerably reduced monthly water costs and less staff hours needed to fix problems was what we wanted, and to be able to do this while helping with the drought situation for our area was a great bonus."

Because the Hilton was a commercial installation, SAWS chose the Caroma Sydney 305 Elongated HET. The Sydney 305, along with all Caroma toilets, are high efficiency toilets. With its two button dual flush feature, the Sydney 305 uses an average of just 0.96 gallons per flush (other Caroma toilets and urinals use even less).

"The Sydney toilets have large trapways and are virtually unblockable," states Leister. "I also like that it does not have a flapper. Toilets that contain flappers that wear out or crack are often difficult to repair and more importantly, can leak, causing unnecessary water usage. The Sydney doesn't have this problem."

The Sydney dual flush toilets were installed in March 2007. "They were so easy to install. During the retrofit project, the Hilton did not lose any room nights because of installation. It was fast, easy, and we continued with our great customer service," adds Russell.

Water savings have been significant. During the first eight months after the toilets were installed, the Hilton Palacio had saved nearly six million gallons of water compared to the same months one year earlier. Approximately 35% less water was being used each month! During peak occupancy periods, the water savings can be more than 45%.

In addition to the water savings, guest complaints about toilet problems have dropped more than 90%, explains Russell. "During 2006, we had 66 clogs and 173 overflows. During the ten months we've been using the Caroma toilets, we've only had 5 clogs and 36 overflows. The clogs, however, have been caused by foreign objects being dropped into the toilet - a writing pen, a cell phone, a comb, among other things. The reduction in maintenance calls for toilets has freed up my time and the staff to work on other projects in the hotel."

Because of results like these, SAWS is continuing to supply Caroma toilets for commercial and residential customers to conserve water throughout San Antonio. According to Leister, "Everyone is lovin' it. Save water, save money, save the environment. It's a great combination, and Caroma is leading the way." The Hilton Palacio is also helping lead the way in conserving water by installing Caroma toilets. According to Russell, "they are easy to install, easy to maintain. The time and effort to replace parts compared to a conventional toilet is like comparing a Pinto to a Corvette. There's no comparison - Caroma is the toilet of choice for water savings." ■



Caroma HET installation at Hilton Palacio del Rio