

BRIEFING 14

FLUSHMATE®

A DIVISION OF SLOAN VALVE COMPANY

Boardwalk Apartments' Water Bills Slashed After Installing 1-Gallon *FLUSHMATE®*-Equipped Toilets

Boardwalk Apartments' owner, Paul Sturkie, says the idea to replace all the toilets in his 100-unit complex with pressure-assist toilets equipped with *FLUSHMATE® IV* came to him after experiencing for himself the power of its bowl-clearing, 1-gallon flush.

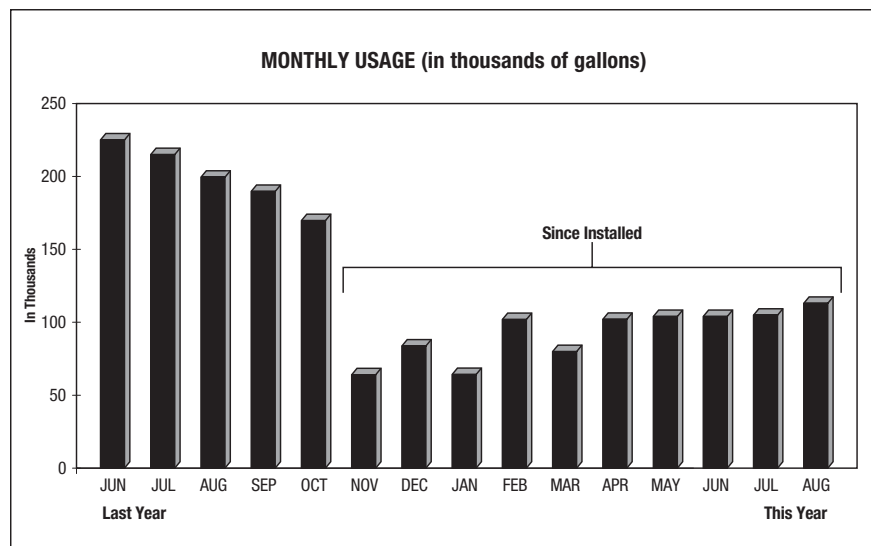
"After having a *FLUSHMATE* installed in my home, I started researching the technology to see if it was suitable to replace the gravity toilets in the Boardwalk Apartment complex in McKinney, Texas, because we were having problems with toilets clogging up all the time," says Mr. Sturkie, who began replacing fixtures in October, 2006. "We were sending the maintenance guys out to work on bowl clogs about two or three times a week before we installed *FLUSHMATE* - equipped toilets. But since we've put in the new toilets, we haven't had a single stoppage – not a single one."

In addition to the inconvenience of his tenants, Sturkie estimates each call that required dispatch of a maintenance professional for a toilet clog required at least an hour of labor when adding together the time for travel, rodding the toilet and completing the job. With his labor averaging \$13 an hour – not to mention the over-use of water – the cost to leave the gravity units in place was just too much.

Today, after his maintenance staff replaced the 100 toilets with 1-gallon toilets equipped with *FLUSHMATE®*'s pressure-assist operating system, Mr. Sturkie is saving more than \$2,300 a month in water and sewer costs.

"I've owned the building for about 20 years. It was built in the early 1980s and each of the units had the original toilet, which was a 3.5 gallons-per-flush gravity model," says Mr. Sturkie. "But since we've put in the new toilets, our water bills are down about 50 percent."

By saving \$23 a month per toilet changed, Boardwalk Apartments realized a 12-month return on investment.



\$2,322 Monthly Savings...

The Boardwalk Apartment complex is comprised of 100 units, each with a single bathroom. That means that the toilets must be durable for everyday duty, as well as the occasional harsh use that is common in a multi-family residential building.

"I've had guys tell me they've pulled out perfume bottles, diapers, T-shirts ... everything you can imagine, we've pulled out of those toilets," says Mr. Sturkie. "The toilets get a pretty good workout because, on average, at least three people live in an apartment. One thing people have told me is that they do not have to double flush any more like they used to. Numerous people have told me that."

"If you have 3.5-gallon toilet, when you double flush, right there it's 7 gallons down the drain. And if the flapper or fill valve is leaking, you're wasting even more," Mr. Sturkie explains. "That was another problem we were having. Flappers being hung up, or the chain being tangled with the handle. That lets a lot of water just flow down the toilet, which was always a problem before."

Saving water has become a hot topic with many investment property owners due to recent and repeated increases in the cost of water and sewer services. That's what prompted Mr. Sturkie to look more carefully at the water-consuming fixtures he has installed in his investment properties. With the cost of water and sewer in McKinney, Texas, rising to nearly \$6 per 1,000 gallons, the return on investment for water-efficient fixtures happened fast.

"Right now, my investment paid off in about 12 months. I saved \$2,322 last month on water alone. I'm interested in anything that saves me money," says Mr. Sturkie. "The initial cost and the maintenance – those are the keys to any purchase. With the 100 toilets we've installed, I've not had one problem. In the same period with the other toilets, I would have been replacing flappers, fill valves and sending guys to plunge a couple of times a week. The bottom line is, *FLUSHMATE* saves me money. I only wish I had done it sooner."

The reason for the significant drop in plumbing maintenance at Boardwalk Apartments can be attributed to *FLUSHMATE*-equipped toilets. The *FLUSHMATE* system additionally has fewer moving parts than traditional technologies and offers a 10-year warranty. *FLUSHMATE*-equipped toilets provide superior drainline carry capabilities, which greatly reduce clogging. As **Figure A** shows, *FLUSHMATE*-equipped toilets evacuate the bowl with such force that the contents are pushed further down the drainline.

The Need for Water Conservation

Aside from the immediate monetary incentive for water conservation, long-term, wide-spread problems can occur if the need to save water is not met. Many times, when a community is near its limit for how much water it is allowed to draw or when the water treatment capacity is closing in on the maximum, area residents and business owners pay the price due to the area's stagnation. Plus, without a steady, affordable source of water and the ability to process it correctly, the potential economic growth of an area is stunted.

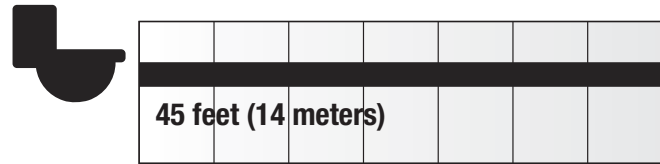
Addressing this problem, the California Urban Water Conservation Council (CUWCC) published an analysis of water needs in a December 2005 draft report to the U.S. Environmental Protection Agency titled, "Alliance for Water Efficiency: Issues & Options." The report cited a 1997 study that calculated an investment need of \$280 billion for drinking-water infrastructure and an updated wastewater system during the next 20 years. A subsequent EPA Gap Analysis report in 2002 identified capital investment needs of \$274 billion for the drinking water infrastructure and \$388 billion for wastewater utilities investment through 2019. Projections by the EPA show gaps of \$102 billion and \$122 billion, respectively, between necessary investments and current levels of revenue to upgrade these systems.

Fortunately, it's been proven that reductions in water demand can lead to deferral or downsizing of water supply and wastewater capital projects. Recognizing the impact that can be made at the local level, the goal of the CUWCC is to organize the involvement of water-conservation stakeholders and to develop plumbing-fixture standards that could evolve toward even more efficient products.

An example of this type of Earth-friendly standard is the EPA's WaterSense™ program.² The WaterSense water-

Figure A

FLUSHMATE® IV 1.0-gpf



efficiency labeling program, which is comparable to the successful ENERGY STAR® energy-efficiency program, establishes voluntary specification criteria for a High Efficiency Toilet (HET). The program includes a standard to ensure optimal performance in addition to maximum consumption levels based on Uniform North American Requirements (UNAR), which includes a soybean mixed media extraction test.

As defined, an HET fixture has an

effective flush volume that does not exceed 1.28 gpf/4.8 Lpf. Further, for fixtures to qualify for the product-labeling program, a performance standard requires a minimum extraction of 350 grams of soybean media. All single-flush toilets must conform to ASME A112.19.2, and all dual-flush toilets must conform to ASME A112.19.14.

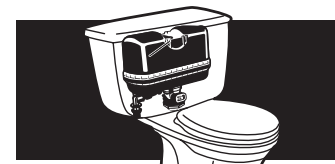
Fixtures equipped with *FLUSHMATE IV* average 730 grams per flush and qualify for the WaterSense program.

The Efficiency Ratio Chart

| Toilet Category | Total Fixtures Measured | Average Grams Removed in Single Flush | Efficiency ratio (grams per gallon) |
|--------------------------------|-------------------------|---------------------------------------|-------------------------------------|
| 1.6-gpf Gravity-Fed | 207 Fixtures | 654 | 409 |
| 1.6-gpf Pressure-Assist | 41 Fixtures | 895 | 559 |
| 1.0-gpf Pressure-Assist | 27 Fixtures | 730 | 730 |
| Dual-Flush | 45 Fixtures | 585 | 366 |
| 1.28 Gravity-Fed | 6 Fixtures | 467 | 365 |

The **Efficiency Ratio Chart** summarizes performance ratings of different toilet technologies. It clearly shows that **1.0-gallon pressure-assist toilets are the most efficient flushing technology** available today. The performance ratings are based on the results of a testing protocol – Maximum Performance (MaP) Testing of Popular Toilet Models – developed by Veritec Consulting, Inc. & Koeller and Company.

For a downloadable Excel sheet that identifies the 325 specific models and their performance, please visit: <http://flushmate.com/Efficiency.xls>



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FOOTNOTES

1) <http://www.cap-e.com/ewebeditpro/items/059F3259.pdf>

2) <http://www.epa.gov/watersense/>