

BRIEFING 8

FLUSHMATE®

A DIVISION OF SLOAN VALVE COMPANY

LEADERSHIP

How One Higher Educational Institution Sets the Standard for Water Conservation Performance

Just 35 miles east of downtown Los Angeles at the foot of the San Gabriel Mountains is a college that is unique in the United States. It's unique from two points of view. First and foremost is the leadership that the college provides – leadership that according to *U.S. News & World Report* gets Claremont McKenna College ranked **consistently** in the top 20 of the most select colleges in the United States.



Claremont McKenna College, Boswell Hall



FLUSHMATE®-equipped toilets conserve water

But Claremont McKenna is also unique because of the aggressive and successful position it has adopted toward water conservation. Several water conserving efforts practiced by the college have resulted in the facilities using 25% less water. What promotes the school's leadership is the particular philosophy of the school, one that fosters free

exploration of the worlds of business and government without sacrificing the uniqueness of college life. What promotes water conservation is an aggressive maintenance philosophy, one that evaluates products in terms of delivering water savings without sacrificing performance.

“The goal was never limited to just water savings, **but saving water without sacrificing performance and quality,**” explains Tim Williams, Maintenance Supervisor for Claremont McKenna College. Maintenance is an ongoing challenge with a resident student population of 900 students and approximately 250 other employees and faculty on this campus. The college also plays host to eight research institutes. “We didn’t initially understand that low consumption/water conservation meant paying a price for performance when we first started our programs. We had to learn – the hard way.” Williams is referring to the initial experiences his maintenance staff had when they renovated Boswell Hall in 1990 and replaced existing toilets with new gravity-type, low water consumption toilets.

that became common practice. Together, these defeated the purpose of using low-consumption



Claremont McKenna College

toilets. Williams’ maintenance crew was constantly “at war” trying to keep the toilets functioning efficiently.

“Some toilets would clog consistently twice a week. Our crew was spending their time unclogging toilets instead of attending to more pressing problems. We had to find a solution, so we turned to pressure-assist, low-consumption toilets that use Sloan *FLUSHMATE*® inside.”

Williams, who had been somewhat aware of the *FLUSHMATE* product for a couple of years, realized that although it was not a retrofit product, a pressure-assist might offer a number of advantages. He worked with Doug Thompson of Thompson Plumbing Supply, in Montclair, California, to learn first-hand what the benefits were.

“Because of the severe water shortages in California, we were already moving toward all avenues of possible water savings,” Williams said. “What no one realized at the time was the price people paid for water conservation in terms of performance. It was just unbelievable.”

Williams says that from day one, the performance of the low-consumption gravity toilets left a lot to be desired. And the situation continued to deteriorate, according to the veteran manager. The gravity toilets lost their water conservation benefits for two reasons. First, the poor performance of gravity’s siphon action and second, the double-flushing

Water Usage from 1992 through 1996				
	92/93	93/94	94/95	95/96
SEP	82,280	91,256	117,436	68,816
OCT	89,012	112,200	104,720	77,702
NOV	75,548	105,468	95,744	69,564
DEC	55,352	63,580	71,060	38,148
JAN	52,360	69,564	84,524	45,628
FEB	89,760	130,900	102,476	76,296
MAR	80,784	113,696	109,208	53,856
APR	99,484	103,972	107,712	75,548
MAY	38,896	42,636	53,108	15,708
JUN	25,432	15,708	2,992	5,236
JUL	11,968	11,220	25,432	17,952
AUG	40,392	20,944	24,684	13,464
<i>Total Gallons Used</i>	741,268	881,144	899,096	557,918
<i>Aver. Gallons Per Month</i>	61,772	73,429	74,925	46,493

Chart shows water usage for Boswell Hall from 1992 through 1996. The last column (95/96) shows water usage after installation of pressure-assist toilets with *FLUSHMATE* inside.

Then he installed a bank of 16 pressure-assist toilets with Sloan *FLUSHMATE*® inside and monitored their performance over a 12-month period.

Thompson, a veteran in the plumbing business, had been dealing with the complaints associated with the performance of gravity low-consumption toilets for quite some time. These complaints mirrored what Claremont McKenna College was experiencing — and more.

“There’s the often little-discussed drainline carry issue that gravity low-consumption toilets bring to the surface,” Thompson points out. “A flush that clears the drain line is necessary to avoid clogging and backups. Pressure-assist toilets that use *FLUSHMATE* inside force water at a rate faster than gravity, eliminating drainline blockages.”

According to Thompson, this results in a *pushing* action, compared to the slower, gravity-siphon (pulling) action of typical gravity units on the market today. The elimination of double-flushing is one of *FLUSHMATE*’s key advantages. In utilizing pressure instead of gravity, the *FLUSHMATE* System delivers a number of additional performance features not found in other low-consumption units. For example, the water spot is bigger on *FLUSHMATE* (10" x 12"). Typical low-consumption gravity-style bowls incorporate a smaller water surface area, which will mean more frequent cleaning. Because the bowl was designed with the largest trapway and

Percentage of Water Saved

	Savings from Previous Year	Savings from 1992/93
SEP	-41%	-16%
OCT	-26%	-13%
NOV	-27%	-8%
DEC	-46%	-31%
JAN	-46%	-13%
FEB	-26%	-15%
MAR	-51%	-33%
APR	-30%	-24%
MAY	-70%	-60%
JUN	75%	-79%
JUL	-29%	50%
AUG	-45%	-67%

Chart shows percentage of water saved over previous year, and from 1992/1993 season as a result of pressure-assist toilets.

the *FLUSHMATE* system delivers the strongest flushing action, stoppages are eliminated.

“We found out almost immediately what the benefit of no clogging meant,” Williams points out, “We were able to do our regular maintenance work orders instead of spending a majority of our time clearing clogged toilets. We were able to document these advantages, we went to our board with further recommendations as the renovations continued. On our campus, it has been pressure-assist ever since.”

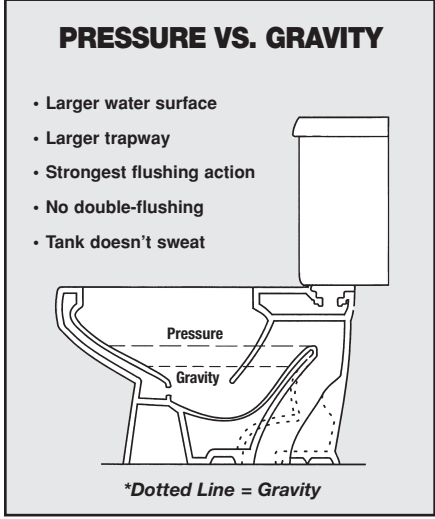
Besides lowering the service calls by 95%, the toilets with *FLUSHMATE* inside cut water consumption dramatically, (as much as 25% –

see the accompanying charts for a five-year comparison).

In a progressive environment such as Claremont McKenna College, it’s little wonder that a higher-than-average scientific approach to meeting water conservation goals would play the major role in helping achieve the school’s conservation objectives. In fact, just as the college proclaims that “your education is what you make it” and proceeds to place all the tools at the disposal of its students to make it all it can be, water conservation turned out to be what the school made it as well. And, make it the best is just what maintenance supervisor Tim Williams did.

Pressure-assist toilets

Back in October 1992, Congress approved legislation that has since become known as the Energy Policy Act of 1992 (HR 776). This law contains provisions which establish federal performance standards for plumbing products for the first time – standards that since January 1994, are starting to have a profound effect on every toilet installed in the United States.



“Most people don’t think a lot about plumbing, mainly because we have really taken it for granted,” Williams says. “We’re not going to make that mistake again.”

According to the U.S. Government, traditional toilets use five to seven gallons of water per flush, which means nearly 4.8 billion gallons of water is flushed down American toilets each day. The U.S. Department of Housing and Urban Development reports that replacing conventional toilets with new low-consumption toilets, which only use 1.6 gallons per flush, would save almost 70 percent of the current U.S. water supply and 5,500 gallons of water per person each year. “However, if your low-consumption toilet has to be doubled-flushed, where’s the savings?” asks Williams.

How FLUSHMATE® Works

Operation is simple and begins as water enters the supply system and compresses entrapped air in the FLUSHMATE® vessel. When the toilet is flushed, the air reacts like a tightly wound spring, surging the water out of the vessel at high velocity. The toilet bowl, which has been specifically designed to accept this flow of water, has a flush cycle of less than four seconds. The crest of the surging water easily pushes bowl contents through the drainline. “The toilet holds the key to helping

reduce water shortages due to droughts and inadequate water-distribution systems,” says Williams. “Here at Claremont McKenna College, the right toilets helped us achieve significant



FLUSHMATE uses pressure-assist technology.

water savings WITHOUT compromising performance expectations.” Claremont McKenna College achieved between 26% to 70% per month in water usage reductions as a result of the pressure-assist toilets that were installed. “The toilet may not take up much space, but it is one of the world’s biggest water guzzlers,” Williams explains. “There are over 350 million toilets in the U.S. alone and billions of gallons of water are needlessly flushed away each day.

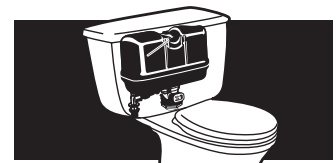
“It is time to utilize toilets with water-saving systems that will reflect in a positive way on our efforts. But again, the key is that the performance and efficiency must be *what people want*. We believe that pressure-assisted toilets provide performance and efficiency.”

Sloan FLUSHMATE, headquartered in New Hudson, Michigan, manufactures FLUSHMATE

Operating Systems at their state-of-the-art design and manufacturing facility and has been ISO 9001 certified since 1994. Sloan FLUSHMATE is a division of Sloan Valve Company in Franklin Park, Illinois. Sloan has been in operation since 1906, and produces plumbing systems for commercial, industrial and institutional markets worldwide.

FLUSHMATE systems are available in 1.6 gpf (6.0 Lpf), 1.28 gpf (4.8 Lpf) and 1.0 gpf (3.8 Lpf) models from leading fixture manufacturers worldwide in a variety of styles and colors. For more information on these systems, including FLUSHMATE’s automatic sensor flushing systems, please contact us or visit our website: www.flushmate.com.

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