



## Ask Gail

by William D. Frye, Ph.D., CHE

### Question about toilet leaks and replacing flapper valves

Another great article from *The Rooms Chronicle*®, the #1 journal for hotel rooms management! \*\*\*Important notice: This article may not be reproduced without permission of the publisher or the author.\*\*\* College of Hospitality and Tourism Management, Niagara University, P.O. Box 2036, Niagara University, NY 14109-2036. Phone: 866-Read TRC. E-mail: editor@roomschronicle.com

Notice: The ideas, opinions, recommendations, and interpretations presented herein are those of the author(s). The College of Hospitality and Tourism Management, Niagara University/The Rooms Chronicle® assume no responsibility for the validity of claims in items reported.

Dear Gail:

I am the general manager at a 126 room limited-service hotel. My maintenance supervisor wants to replace the rubber flapper valve inside the tank of every toilet in the hotel on an annual basis. He has requested to expend almost \$600 in labor and supplies to do this. As I am getting pressure from the owner to minimize expenses, is this really prudent? I look forward to your reply.

Ann Marie H.  
San Diego, CA

Dear Ann Marie,

*With the rising costs of energy and water these days, I would consider \$600 a small investment that can reap large dividends. As you probably are already aware and as explained in Phil Sprague's energy column in our last issue of *The Rooms Chronicle*, water conservation has been at the forefront of many managers' minds, especially in drought stricken and warm weather climates such as Southern California.*

*Consider these well established facts. Limited-service hotels should consume about 3,500 cubic feet of water per guestroom, per year. In just one year, a leaky toilet can waste over 22,000 gallons of water. This equates to 2,941 cubic feet of wasted water per year, per leaky toilet, or a potential increase in water expense of 80%. The current published rate charged to commercial establishments for water by the City of San Diego is \$2.357 per hundred cubic feet. This means that one leaky toilet has the potential to cost your hotel an extra \$29.41 per year. If the toilet in every guestroom in your 126 room hotel leaked, the potential extra expense, notwithstanding repairs, would be \$3,705.66.*

*A toilet's flapper valve is what prevents the flush water that is being held in the toilet's tank from leaking into the toilet bowl. When a guest depresses the handle to flush the toilet, the flapper valve is raised and gravity forces the water in the tank into the bowl. During this process the old bowl water and contents are displaced by the new water and forced down the toilet drain into the sewage system or septic tank.*

*Since toilet flapper valves are made of rubber or silicone, they are susceptible to corrosion, wear and tear over time. If a watertight seal is not maintained due to the breakdown in the flapper's composition, then water will leak into the toilet bowl. For every ounce of water that leaks from the tank into the toilet bowl, it displaces an equivalent amount out of the bowl and down the toilet drain. So yes, worn and poorly fitting toilet flappers valves account for the majority of wasted water in toilets.*

*To determine whether a toilet's flapper valve needs to be replaced, your maintenance supervisor can drop a dye tablet into the toilet's tank, wait 15 minutes, then check to see if any of the colored water in the tank has leaked into the bowl. If it has, the flapper should be immediately replaced. Dye tablets are available at minimal or no cost at most plumbing supply centers and water utilities. Alternatively, liquid food coloring can also be used in place of a dye tablet.*

*The process to replace a flapper valve is very straightforward, but it does require that the supply line that furnishes the water to the tank be shut off and then flush the toilet to empty the water out of the tank. Once replaced, turn the supply line valve back on and let the tank refill. It is always advisable to check the seal of new flapper valves by redoing a dye test after replacing the flapper valve.*

*For various reasons, I strongly recommend changing your entire hotel's flapper valves at the same time, at least initially. Going forward this will permit you and your maintenance supervisor to better monitor leaky toilets and assess the savings*



Pictured left: Rubber toilet flappers such as this are quick and inexpensive to replace and can prevent water from being wasted.

---

Pictured right: Drop one of these dye tablets in the toilet tank, wait 15 minutes and check the toilet bowl for discolored water to determine if the toilet is leaking.



from your investment. It will also allow you to determine the appropriate replacement schedule for flapper valves. The service life of your flapper valves will be primarily affected by the hotel's occupancy, the mineralization and chemical content of the city's water supply, and the material composition of the flapper. Rubber flapper valves typically cost about \$2-\$4 each but wear out much quicker. Silicone-coated rubber and plastic flapper valves will cost a few dollars more but provide a longer service life. They also withstand chlorine much better than rubber valves. Finally, to prolong the service life of your toilet tank's rubber flapper, avoid placing chlorine-based colorants or deodorizers in the toilet tank. ✧

(Readers are encouraged to submit via email their specific questions about hotel operations to Ask Gail at: [editor@roomschronicle.com](mailto:editor@roomschronicle.com)).