

Is There any Hope for Water Conservation and Leak Detection in Rental Properties?

by Jordan Sudy

I'm a property manager for a small mom-and-pop company that owns several residential buildings in San Francisco. In April of 2007 one of our buildings, a twenty-one unit, early 20th century Victorian in the Lower Haight, saw its water usage more than double over a two-month span, going from approximately 70,000 gallons to 168,000 gallons of water consumption. In the midst of our guilt (we consider ourselves a 'green friendly' company, having installed a solar array on this very building) for allowing such egregious environmental irresponsibility to happen right under our noses, we were further appalled when we saw that the cost of our water bill had *tripled* over the *doubling* of water usage, going from \$500.00 to more than \$1,500.00. With this, we learned to recognize the hard way that *wastewater usage in San Francisco is billed on a tiered basis, whereby the more you waste, the greater the rate at which you pay for that waste.*

The landlord, of course, demanded that we find the source of the water leak at all costs. I reminded him that we had, in March, within the time period in question, had two tenants report running and leaking toilets. The tenants had each taken about three weeks to report the need for a repair of the running toilet. When I questioned these tenants as to why they had not reported the toilet leak earlier, they said that the condition had only produced a small, nearly silent noise that they had grown used to, and that it didn't seem like a big deal, as their running toilets each continued to work fine even as they leaked.

Well, after careful research, I found that the enormity of waste and the 200 % increase in cost that we experienced was indeed caused by just two leaking toilets, and the negligence on the part of our tenants in reporting it. When I reported back to the landlord that only two toilets over three weeks had been responsible for our disaster, he balked, "Impossible." However, I demonstrated in the following way the stunning mathematical reality behind the toll of a running toilet. This math is, at least to the landlord and me, nothing less than astounding:

Consider that a constantly running toilet can cause the waste of **two gallons of water per minute**: http://www.ebmud.com/conserving_&_recycling/water_smart_tips/default.htm). If we then take the 60 minutes in an hour and the 24 hours a day, we find that per day, one of these toilets will waste **2,880 gallons**. If we then take that 2,880 gallons a day and extend the running condition over the three weeks it took the tenant to report it, we see a total waste of **60, 480 gallons!**

Demonstrated in this way, we can see then how the two toilets in question, coupled with the negligence of the tenancy, could be responsible for **100,000+** gallons of waste we experienced in March and April of 2007.

Now, and herein lies the root of the problem, because the building is not metered for 'by-unit' water use, but rather, is metered building wide, we were unable to prove those negligent tenants responsible and were forced to eat the bill. On the other hand, if the

building were metered by unit, as it is for gas and electric, we could charge the tenants for water in a fair way. However, as is the case with most older buildings in most cities, metering is building-wide. Because of this condition, coupled with the historic ready availability and inexpensive environmental and economic cost of water, most property owners tend to include water in the rent as they have in the past. As a consequence, an *environment of carelessness* has been perpetuated: **the tenants don't pay for water, and so as long as their fixtures continue to function, and the sound of the leak isn't too irritating, well, they figure, "I'm not paying for it, the sound isn't too irritating, so let it leak."**

The above considered, I was charged with the task of getting the tenancy to be more proactive in its reporting of water leaks, so to aid in the detection thereof. But as anyone in property management will no doubt relate, you cannot rely on renters to care about a property, or conditions of that property, as if they owned it, *especially* if what you are asking them to care about doesn't threaten them in their pockets in some way.

Furthermore, considering the fact that water bills are given bi-monthly, the exposure of property owners to this sort of situation is enormous.

I wondered then, was there some sort of an alarm device out there, some sort of water leak detection equipment or system, *something*, some technology to let us know that water was being wasted, so that we wouldn't have to rely on a tenant report in a condition where they cared not a whit?

A friend and I got together to look into this question. Unfortunately, after a careful survey of available water leak detection technology, we came to the conclusion that the only available leak detection products come in three forms.

- The first requires a splice-into-the-rough-plumbing-retrofit-condition, which is unquestionably an expensive proposition, requiring a plumber, and moreover, exposure to a possible nightmare with respect to the physical fragility of cutting into 100+ year-old plumbing systems.
- The second form requires the occurrence of a flood condition, whereby the water level rises and physically touches the device which then sounds an alarm. However, because a toilet is equipped with an overflow valve, a leaking toilet situation will never cause a rise in level, but will continue to run, as we were forced to painfully accept, indefinitely.
- Finally, there are available what are called 'sub-metering' devices that work by ultrasound. However, these are expensive and require a skilled technician to install and maintain.

It was then that we realized what we were looking for: a cheap and easy way to detect a leak and set off an alarm in a running toilet condition. In this, we imagined an analogue to a smoke detector, but, a detector for water leaks rather than smoke. Just as a smoke detector takes a silent killer and puts an annoying, call provoking alarm to it, so would this acoustic leak detection device take the nearly silent killer of leaking water, and put an

annoying call provoking alarm to it. As a smoke detector is easy to install, so would this active water leak detector be, installation would not require a skilled technician, and the determination of a leak wouldn't either. There would simply be an irritating noise, provoking the proactive response that would urge the tenancy to responsibility, and save us from the environmental and the economic water waste and conservation disaster that we experienced back in April.

Furthermore, we realize that this water waste problem we were having must be a serious happening across the country, at the very least in our neck of the woods, with the nearly 200,000 rental units in San Francisco alone. Moreover, in a time where Orange County is completing the construction of a half billion dollar system that turns wastewater back into potable water, we saw, in this leak detector, a far cheaper and more responsible way to return the potable water from wastewater than building a system, the likes of which, had previously only existed in Africa—by stemming the waste of water at the source! The only problem is that no such water leak detection device is extant.

Therefore, we are presently looking into creating such a system with our own resources, but as a great help, would like to reach out to our fellow landowners and property managers in order to determine if they have experienced the problem we had, how they have dealt with it, and whether or not they see the need for such a device in the same way that we do.

We believe that it is our responsibility to do all we can to stop this water waste. For it is clear that at this point that not only is there a significant environmental responsibility here, but a real economic incentive as well.

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