

HABITAT Energy Retrofit

OCTOBER 22, 2018

An Innovative Approach to Water Conservation

By Frank Lovece

1 big thing: Water submetering. That's right, residents actually paying for what they use.

Say what? Digital technology makes water submetering practicable, even in apartment buildings. The way it works is this: small, digital meters are installed at each pipe or on individual fixtures (such as a toilet, shower or sink) in each apartment. These communicate wirelessly to a gateway which is located in the building, and this data is then transmitted to the cloud. From there, the data goes to a third party who will generate bills, leak and event reports. The meters track gallons-per-minute, number of flushes (events), and the amount of time water has been running continuously.

What you need to know. How many digital meters each apartment requires depends on your buildings water pipe configuration. It can range from one per apartment up to seven.

The big question. Why would you consider this? Couple of reasons.

- First, to encourage residents to conserve water. If people see how much they are using, and they actually pay for it, there is more incentive to use less.
- And second, to significantly reduce an expense item on your corporation's financial statement. Instead of the water bill being a corporate expense, it is billed directly to each apartment.



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So what's the cost? Roughly speaking, according to Don Millstein, president of H2O Degree, the meters cost \$200-225 each which includes the wireless infrastructure. In general, toilets use 40 percent of an apartment's water, the shower/tub uses 40 percent, and kitchen hot water uses 5-10 percent.. By metering just the toilet, the shower and the kitchen hot water you cover 85-90% of an apartment's water use with just four meters. Sensors are placed on exposed pipes and can be placed within a showerhead.

And what's the payback? CPA Carl Cesarano of Cesarano & Khan represents one 60-unit building in Long Island City, with working people not home most of the day, paying about \$27,000 per year in water. Another 60-unit building he reps in the Bronx pays about \$59,000 annually. At an average \$212.50 per meter, a 60-unit building requiring one meter per apartment would lay out \$12,750. A similar building with four meters per apartment would lay out \$51,000. So in these hypothetical cases, with building staff providing labor, payback would be anywhere from within three to six months to within one to two years.

Be smart. Sharon Gardens, a 178-unit condo complex in Woodbridge, N.J., recently installed water metering. "Our water bills were going up, as were our sewer bills," says Gloria Landi, the current property manager and a former board member of Sharon Gardens. "Owners should be paying for their own usage in order for [common charges] to not get higher," she says, "and also for owners and residents to not waste water and to be aware of leaks. If they owned their own [single-family] home they would be paying water and sewer."

Side benefits.

- Water submetering can detect leaks, and will generate an event report for building staff to follow up. "In one bathroom, the monitor may register a normal day as 10 flushes at two gallons apiece," says Millstein. "If the monitor registers a hundred events at 0.3 gallons each, there's a flapper valve in the toilet tank leaking water. That generates an event report that building management or maintenance staff can address."
- It can also spot waste, like a faucet inadvertently left running. The monitor could generate a report "if it sees water running for, say, two hours straight," Millstein says.
- It also helps identify dangerously crowded living conditions, he suggests. "One bathroom may have normally have 10 flushes a day. If the monitor registers 25 or 30, maybe it's a party, maybe someone ate a bad burrito. If that continues for a week or two straight, that brings up potential over-occupancy."

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