

Nov 25th, 2013

Location: *Toronto, Ontario, Canada*

Facility Type: *Multi-Residential Building - 65 Units*

Overview

This case study details the findings on the installation of the H2minusO Flow Management Device (FMD) water saving technology at a Multi-residential site located in Toronto, Ontario. These results demonstrate the value-add our device can provide your organization and business. Virtually any facility that consumes water can benefit from our technology.

Background

Water meters have changed little since their beginning and have a major fault in their design: air in your water lines is read as water by your meter. So for ALL end users, there is a very high probability your meter is billing you for water use, but not your actual consumption.

In a variety of ways, air can enter the water supplied by your water utility. Our H2minusO Flow Management Device (FMD) valve acts to minimize the air that would otherwise travel through your water meter and inflate the volume of water you ultimately pay for. All water pipes intermittently carry air along with water. As water travels from the water company to a home or business, air builds up in the water pipelines via internal and external processes. Since all water meters measure total volume, including both air and water, the blades in the meter turn faster than they would with just water alone. As a result, if you don't have our H2minusO valve, you pay more than necessary for your water.

What are the benefits for your business/organization/facility?

- Lower water bills
- Rapid return on investment
- Increased net operating income

The Technology: H2minusO - Water Flow Management Device





The Installation

The installation at this facility was for a 2" Valve that took approximately 4.5 hours. A typical install will usually take between 2-4 hours and in most cases, if there is a by-pass, water services will still be available to the facility. Once the installation is complete the water savings will start immediately.

The Project Analysis: *Pre and Post Water Consumption Analysis*

The facility in which the H2minusO was installed required a 2-inch valve. The Measurement & Verification process was straight forward for this property because no water saving retrofits had been completed in the 24 month period prior to the install. Nevertheless, our analysis was very detailed and factored in the key events that can skew the analysis results such as occupancy levels, type of facility and incoming city water pressure. We used billing and consumption data for both the pre and post installation periods which provided us with sufficient data to complete a comprehensive analysis. The analysis explored such things as consumption patterns, abnormal or suspicious periods of consumption, comparison of same period consumption year to year and consumption trending.

This facility exhibited consistent water consumption patterns year over year, so we wanted to see the impact of our device over a longer period of time both pre/post installation as well as the impact based on a rolling 12-month average. The rolling 12-month average allowed us to track the gradual steady decline in the monthly average consumption. The results are summarized in Table 1.

As shown in Table 1, the pre-installation period established the baseline we used to measure the post installation results against. Row one in Table 1 shows that the pre-installation average, over a 602 day period, was 24.66 m3 per day or .357 m3 per unit per day. The second row in Table 1 shows a decrease of 5.35% in the average daily consumption over a 344 day period when compared to the baseline results. This time frame includes the 235 days pre-installation and 109 days post installation. Row three highlights the consumptions result for the 109 days post installation. Compared to the baseline results, this facility experienced a 9.77% reduction in the average daily consumption, clearly pointing to improved meter reading efficiency.

Table 1: Period Analysis - Consumption

Measurement Type	Measurement Period - Start	Measurement Period - End	Average Daily Consumption (m3)	Average Daily Consumption Per Unit (m3)	Reduction in Water Consumption Reading
Consumption for 602 days Pre-install	1-Aug-11	8-May-13	24.66	0.357	0.00%
Consumption for 344 Pre-install & Post install	2-Aug-11	1-Oct-13	23.34	0.338	5.35%
Consumption for 109 Days Post Install	8-May-13	1-Oct-13	22.25	0.322	9.77%

Chart 1:

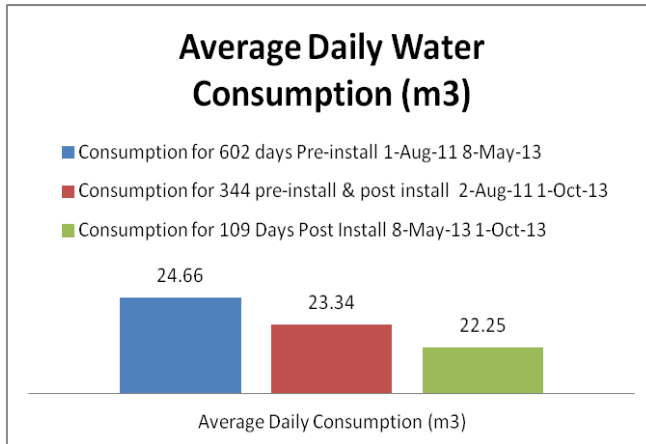


Chart 1 shows the daily water consumption recorded period over period based on water bills and actual meter readings.

Chart 2:

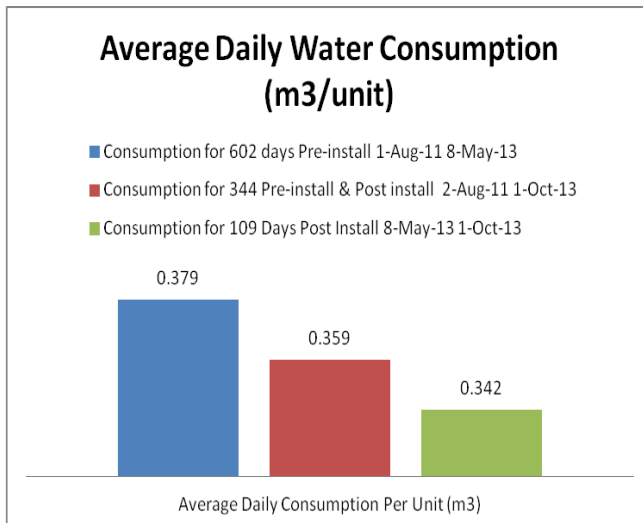


Chart 2 shows the daily water consumption per unit period over period based on water bills and meter readings.

Chart 3:

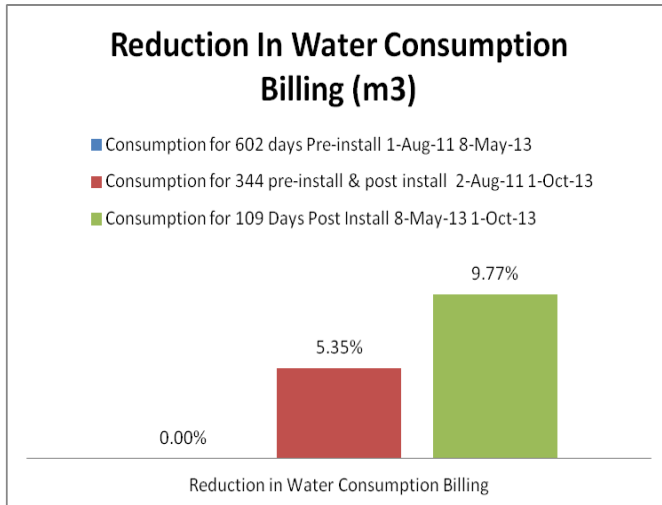


Chart 3 shows the actual percentage savings recorded period over period based on water bills and actual meter readings. The percentage savings can be applied directly to overall water cost to determine the reduction in water bills.

The Project Analysis: *Estimated vs Measured Water Consumption and ROI Analysis*

Based on the initial audit of the facility and analysis of 24 months of water bills, we determined that this building would yield savings of approximately 6%. Factoring in the average 2012 and 2013 water rates and projected reduction in consumption billing, this building had an expected payback at 3.81 years. The post installation results and analysis indicate the projected savings will be 9.77% with a payback in 2.88 years

Table 4: Estimated vs Measured results

	Estimated	Measured	Difference
Percentage Savings	6.00%	9.77%	62.83%
Average Daily Reduction in Water Billing (m3)	1.48	2.41	.93

Summary

The installation of the 2-inch H2minusO FMD will generate a reduction in water consumption readings based on the current existing conditions. Because the device treats the entire volume of water entering the facility, regardless of changes in the buildings consumption patterns and history, this facility will continue to experience savings of 9.77% on their water consumption. Furthermore, the financial metrics and ROI are based on the average of 2012 and 2013 water rates, so the actual dollar savings on future consumption will increase provided water rates continue to increase.