July 10, 2014

Location: Toronto, *Ontario, Canada*

Facility Type: *Multi-Residential Building - 246units*

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. The positive results demonstrate the value-add our device continues to have on this facility and will continue to have. Virtually any facility that consumes water can benefit from our technology.

Background

Good water management requires accurate water measurement!

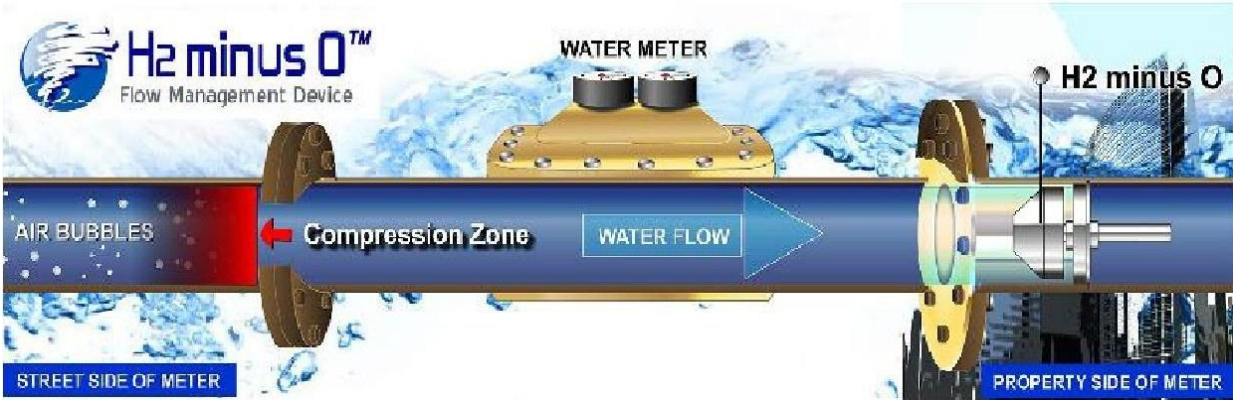
Water meters have changed little since their beginning and have a major fault in their design: air in your water lines is read as water by your meter. So for ALL end users, there is a very high probability your meter is billing you for water use, but not your actual consumption.

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



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The Installation

The installation at this facility was for a 3" Valve that took approximately 4 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*

This measurement & verification analysis is based on actual billing information as well as daily readings pre and post installation of the H2minusO valve. Encompass was provided billing details for 24 months up to the May 2013 billing period. We also took daily readings for 47 days prior to the install and then for an additional 42 days after the installation. However, the last 22 days of this 42 day period included an additional variable that was not a factor in prior years and more specifically the post installation measurement period. A new irrigation system had been installed Sept/Oct of 2013 and was put in use on the June 10th, 2014. This had the obvious impact of increasing consumption during the relevant measurement period. Nevertheless, we continued to capture the readings to analyze the lasting impact of the technology even when we knew water consumption had increased. The post data collection allowed us to conduct a detailed comparative Measurement & Verification (M&V). The analysis explored such things as consumption patterns, abnormal or suspicious periods of consumption, comparison of same period consumption year to year, consumption trending and impact off variables contributing to increased consumption.

It is also important to note that this facility completed water saving toilet retrofits early in the beginning of the 2nd year of the analysis period. This was well before the H2minusO retrofit, such that it had little impact on our M&V process. It was important, however, when comparing year over year and month over month consumption levels and patterns. Such water saving retrofits can skew the data analysis exercise and thus can cause a grossly inaccurate ROI analysis. Although the impact was muted, and add to that the new irrigation system, and it still required us to conduct detail analysis on water consumption as a 5 part process (see Table 1) rather than a typical 2 part process, which usually consists of a pre and posts H2minusO FMD install.

Our analysis showed this facility exhibited consistent water consumption patterns year over year relative to any water retrofits completed. So the installation of the H2minusO valve would quickly demonstrate its impact by showing a deviation from this consistent consumption pattern. As shown in Table 1 rows 1 to 3, the pre-installation period, established the baseline we used to measure the post installation results against and to have a relative comparison of the pre and post toilet retrofits. Row one in Table 1 shows that the daily average before the pre-toilet retrofits was above the average consumption for buildings of this profile. After the toilet retrofits, there was a significant drop, in consumption, by nearly 25%. This still, however, left the average consumption per unit higher than the average for other similar profile buildings. Row 3 shows the 47 day average of 158.26 m3 pre-installation of H2minusO. Row 4 shows a 19-day post-installation consumption average of 147.13 m3, which represents a significant decrease in consumption of 7.03% compared to the 47 day pre-installation period. Compared to the baseline results, this facility experienced a 7.03% reduction in the average daily consumption, clearly pointing to improved meter reading efficiency. This facility, in spite of the irrigation system being additional consumption, still experienced a 4.59% decrease in consumption.

Table 1: Period Analysis – Consumption

`	Measurement Period - Start	Measurement Period - End	Average Daily Consumption (m3)	Average Daily Consumption Per Unit (m3)	Reduction in Water Consumption Reading
Consumption for - 468 days (pre toilet retrofit)	**6-Aug-11**	**16-Nov-12**	**224.97**	**0.91**	**0.00%**
Consumption for - 258 days (post toilet retrofit)	**13-Dec-12**	**1-Aug-13**	**169.58**	**0.69**	**24.62%**
Consumption for - 47 days (pre H2minusO retrofit)	**4-Apr-14**	**21-May-14**	**158.26**	**0.64**	**6.67%**
Consumption for – 19 days (post H2minusO retrofit)	**21-May-14**	**9-Jun-14**	**147.13**	**0.60**	**7.03%**
Consumption for – 42 days (post H2minusO retrofit) *	**21-May-14**	**2-Jul-14**	**150.99**	**0.61**	**4.59%**

*This post-H2minusO consumption measure includes the addition of an irrigation system that was not part of the pre-installation analysis and baseline establishment.

Chart 1:

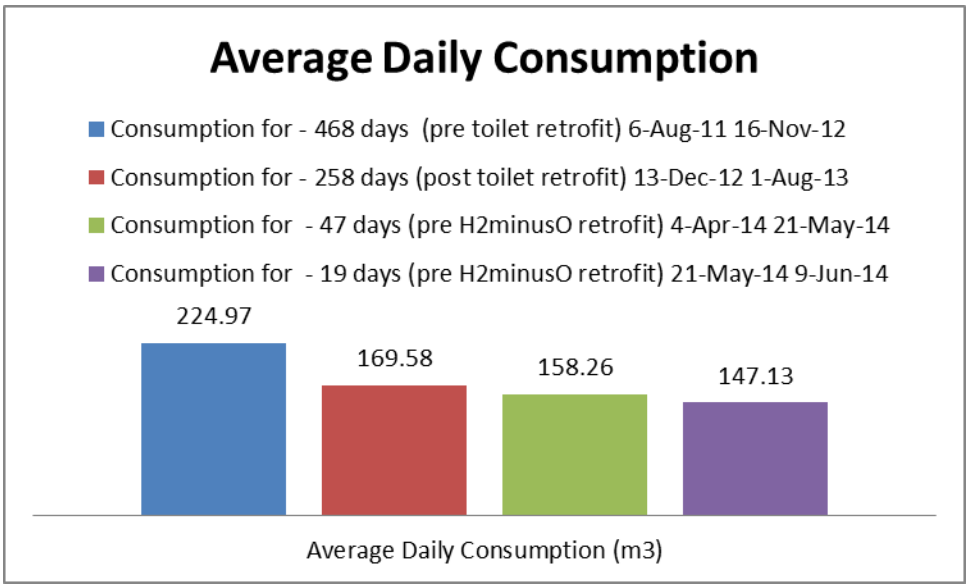

Chart 1 shows the daily water consumption recorded period over period based on water bills and actual meter readings.

Chart 2:

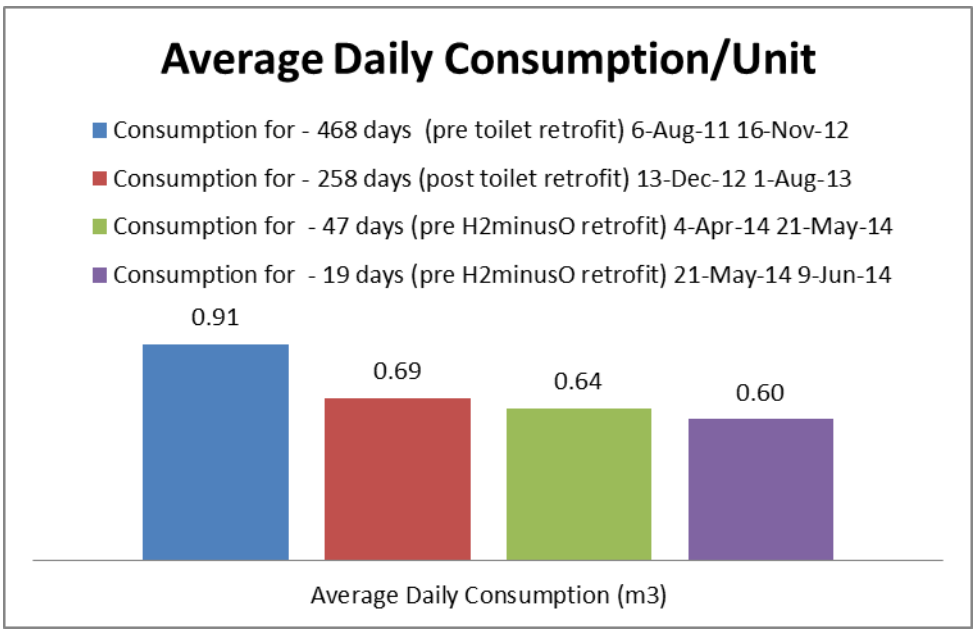

Chart 2 shows the daily water consumption per unit period over period based on water bills and meter readings.

Chart 3:

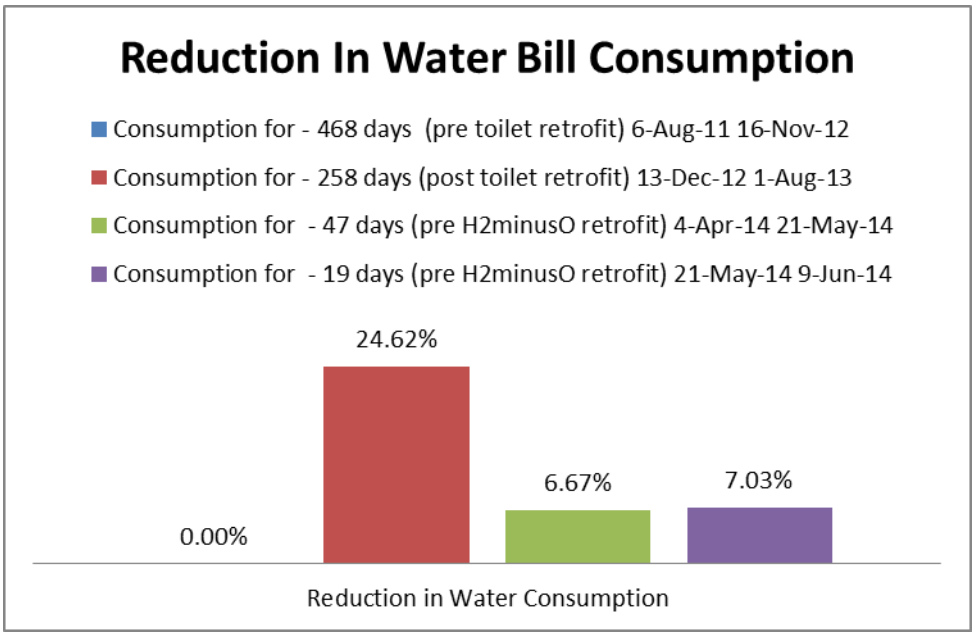

Chart 3 shows the actual percentage savings recorded period over period based on water bills and actual meter readings. The percentage savings can be applied directly to overall water cost to determine the reduction in water bills.

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 a payback savings of approximately 6.0%. Factoring in the average 2012 and 2013 water rates and projected reduction in consumption billing, this building had an expected payback at .96 years. The post installation results and analysis indicate the projected savings will be 7.03% with a payback in .79 years

Table 3: Estimated vs measured results

	Estimated Payback (yrs)	Measured Payback (yrs)	Difference (yrs)
Projected Payback	.96	.79	.17

Summary

The installation of the 3" 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 7.03% on their water consumption readings. 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.