

Jan 1, 2014

Location: Toronto, Ontario, Canada

Facility Type: Rance Property Management *Multi-Residential Building - 165 Barrington Ave - 250 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 at 165 Barrington Ave, 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!

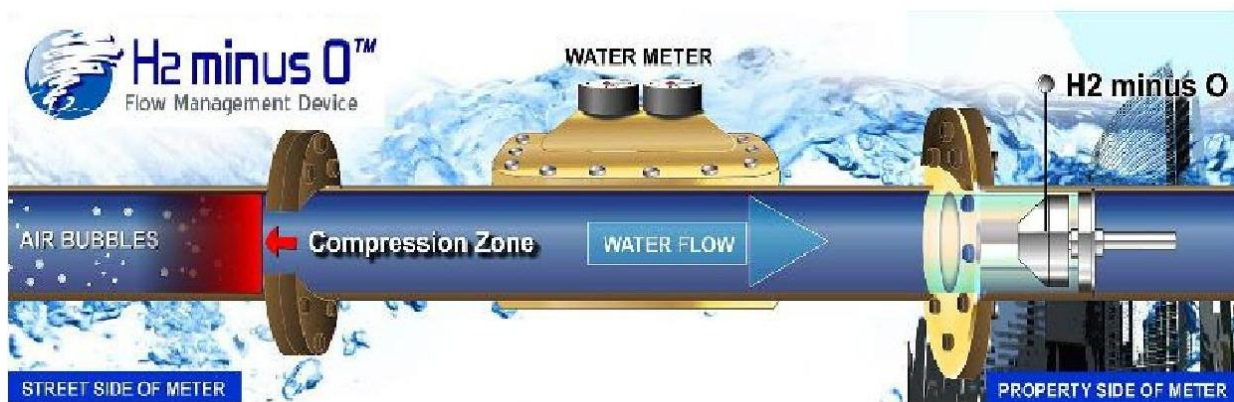
Water meters have changed little since their beginning and have a major fault in their design: air in your water lines is read as water by your meter. So for ALL end users there is a very high probability your meter is billing you for water use, but not your actual consumption.

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





The Installation

The installation at this facility was for a 3" 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*

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 Oct 3, 2013 billing period. We also took daily readings for 50 days prior to the install and then for an additional 14 days after the installation. This data collection allowed us to conduct a detailed comparative Measurement & Verification. 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.

Our analysis showed this facility exhibited consistent water consumption patterns year over year, so the installation of the H2minusO valve would quickly demonstrate its impact by showing a deviation from this consistent consumption pattern. The lowest average daily consumption (during any 1 month period) over the 24 months pre-installation was 132 m3. The daily average in 2011-2012 was 136.89 m3 and 137.39 in 2012-2013. The average daily consumption during the 50 day period pre-installation of the H2minusO valve was 133.30 m3. So as noted the consumption was relatively consistent.

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 daily average for the same pre-installation time-frame (2 years prior) was 133.70 m3. Row two of Table 1 shows the same period average of 147.86 m3 (1 year prior) and Row three shows the 50 day average of 133.30 m3 pre-installation. Row 4 shows a 14 days post consumption average of 110.44 m3, which represents a significant decrease in consumption of 17.15% compared to the 50 day pre-installation period.

The post installation daily average of 110.44 m3 generates even greater savings when compared to the annual consumption averages from 2011-2012 and 2012-2013. The savings when compared to the 2011-2012 average is 19.32% and 19.62 % when compared to 2012-2013 (see Table 2). Compared to the baseline results, this facility experienced a 17.15% 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	01-Nov-11	17-Dec-11	133.70	0.5391	0.00%
Consumption for	03-Nov-12	17-Dec-12	147.86	0.5962	-10.59%
Consumption for 50 Days Prior to Install (based daily meter readings)	28-Oct-13	17-Dec-13	133.30	0.5375	9.85%
Consumption for 14 Days Post Install (based on daily meter readings)	17-Dec-13	31-Dec-13	110.44	0.4453	17.15%

Table 2: Period Analysis - Consumption

Measurement Type	Measurement Period - Start	Measurement Period - End	Average Daily Consumption (m3)	Reduction in Water Consumption Reading vs 2011-2012	Reduction in Water Consumption Reading vs 2012-2013
Consumption for	01-Oct-11	30-Sep-12	136.89	0.00%	
Consumption for 14 Days Post Install	17-Dec-13	31-Dec-13	110.44	19.32%	
Consumption for	01-Oct-12	03-Oct-13	137.39		0.00%
Consumption for 14 Days Post Install	17-Dec-13	31-Dec-13	110.44		19.62%

Chart 1:

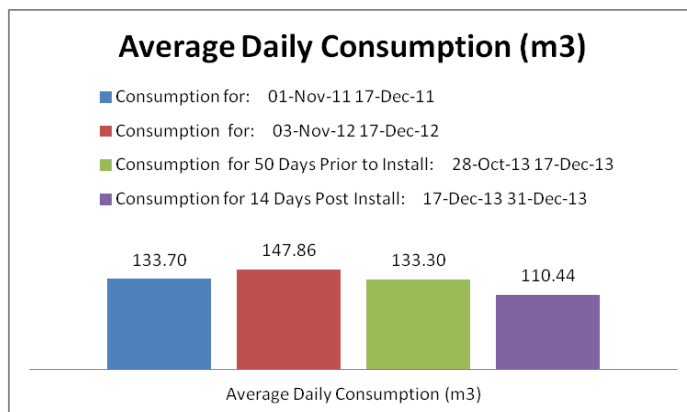


Chart 1 shows the daily water consumption recorded period over period based on water bills and actual meter readings.

Chart 2:

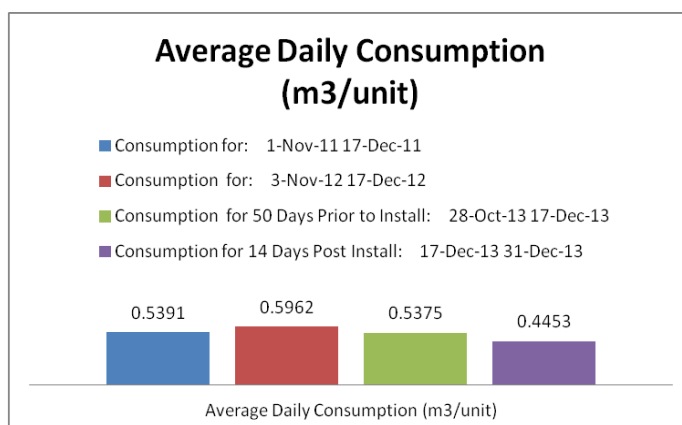


Chart 2 shows the daily water consumption per unit period over period based on water bills and meter readings.

Chart 3:

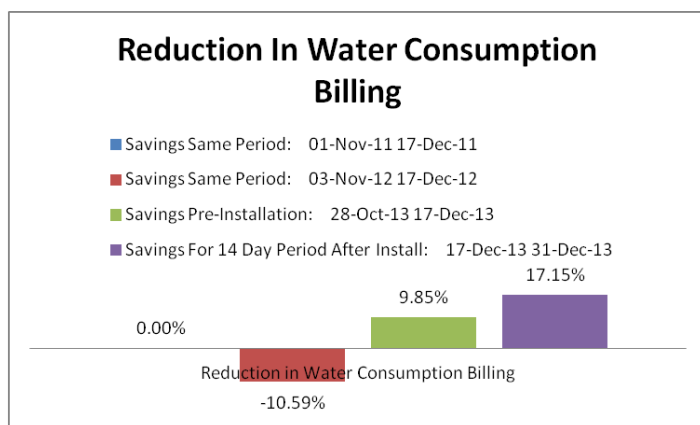


Chart 3 shows the actual percentage savings recorded period over period based on water bills and actual meter readings. The percentage savings can be applied directly to overall water cost to determine reduction in water bills.

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 12%. Factoring in the average 2012 and 2013 water rates and projected reduction in consumption billing, this building had an expected payback at .75 years. The post installation results and analysis indicate the projected savings will be 17.15% with a payback in .54 years

Table 3: Estimated vs Measured results

	Estimated Payback (yrs)	Measured Payback (yrs)	Difference (yrs)
Projected Payback	.75	.54	.28

Summary

The installation of the 3 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 17.15% 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.