

# MULTI-RESIDENTIAL PORTFOLIO CASE STUDY: COMPREHENSIVE ANALYSIS



10 properties with over 2,000 units  
Toronto Region, Canada

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## MULTI-RESIDENTIAL PORTFOLIO CASE STUDY

The installation of the **H2minusO Flow Management Device (FMD)** across the Multi-Residential Portfolio demonstrated consistent water efficiency improvements, billing accuracy, financial savings, long-term property value enhancement, and automatic adaptation to unique water footprints. With data spanning **10 properties with over 2,000 units**, results confirm measurable reductions in water consumption, showcasing the device's ability to optimize flow, minimize inflated billing, and offset rising utility costs.



*"Think of a river—when it's calm, water flows smoothly. But when rocks and sudden drops appear, turbulence creates foam and bubbles. In pipes, this same effect causes air to mix with water, artificially inflating meter readings."*

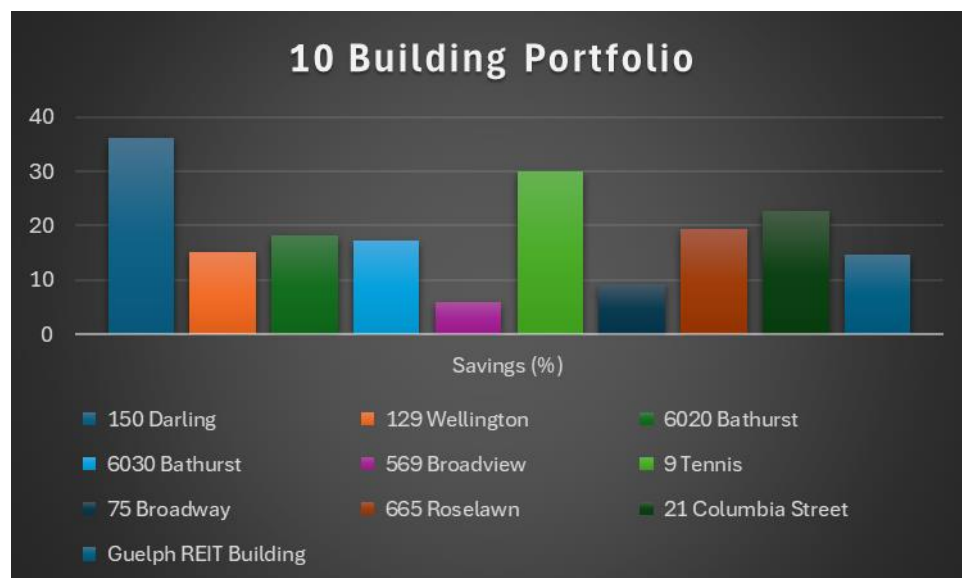
### H2minusO Technology Overview

Water meters measure total volume, but turbulence in pipelines causes air pockets to mix with flowing water—leading to artificially inflated consumption readings and excess costs for building owners and managers. Turbulence arises from various factors, such as pump activations, pipe size transitions, or infrastructure damage, and forces air into the system. These disruptions cause water meters to register both liquid and trapped air as part of the total consumption. The **H2minusO Flow Management Device** mitigates these inefficiencies by stabilizing water flow patterns and reducing the effects of turbulence-driven air pockets, ensuring more **accurate billing, lower water waste, and operational cost savings**.

## Key Features & Competitive Advantages

- **Minimizes Air Volume** → Reduces inflated meter readings caused by turbulence and unnecessary costs.
- **Optimizes Water Flow** → **Automatically adjusts to fluctuations in usage**, enhancing system efficiency for multi-residential properties without requiring manual intervention.
- **Improves Billing Accuracy** → Ensures owners only pay for the water they actually use.
- **Offsets Rising Utility Costs** → Immediate savings help reduce the impact of future water and sewer rate increases.
- **Boosts Property Value Potential** → Improved operational savings directly contribute to **increased property value** using capitalization rate calculations.
- **Adapts Automatically to Water Footprints** → Unlike competitors requiring **manual adjustments**, the H2minusO device **automatically** responds to **fluctuations in water flow**, delivering **continuous efficiency without recalibration**.
- **Preserves Water Pressure (psi) Without Tenant Disruptions** → The **H2minusO device minimizes psi loss**, ensuring tenants **never notice any changes in water pressure**, making it **invisible in daily use**—a key competitive edge over other solutions.

## Key Findings from the Portfolio



## Property & Ownership Impact:

- Reduction in Water Consumption: Across the 10 properties, the portfolio recorded an **average savings of 18.55%**, with individual buildings achieving reductions from 5.91% to 36.17% post-installation.
- Financial Impact & ROI: **Payback periods initially ranged from 0.75 to 2 years**, but updated results shortened the average payback period to approximately 0.60 years, ensuring customers recover their investment quickly.
- Exceptional Long-Term ROI: With a **10-year warranty**, customers benefit from substantial savings year after year, compounding into significant financial returns over the device's lifetime.
- Impact on Property Value: Operational savings, like the annual \$28,833 example from similar properties, can increase property value by hundreds of thousands of dollars using standard capitalization rate formulas.
- Installation Efficiency: Valve installations typically required 2 to 4.5 hours, with immediate savings realized post-installation.
- Long-Term Sustainability: The device treats all incoming water, ensuring persistent savings regardless of future consumption patterns. As **water and sewer rates** rise, financial benefits will continue to scale.



## Target Market & Product Benefits for Building Owners

### Ideal Sectors:

- Multi-Residential Property Owners & Developers → Lower operational costs while improving net operating income.
- Water Utility & Infrastructure Providers → Enhance meter accuracy and prevent inflated billing caused by air in pipelines.
- Facility Managers & Sustainability Experts → Optimize water consumption for eco-friendly usage and long-term efficiency goals.



### Key Benefits for Building Owners

- Lower Water Bills & Increased Net Operating Income
- Optimized Meter Efficiency for Accurate Billing
- Quick ROI with Immediate Water Savings
- Eco-Friendly Solution Supporting Green Building Standards
- Property Value Enhancement → Operational savings boost overall asset value for owners.

### Final Takeaway

With a proven track record of reducing water costs, improving billing accuracy, and enhancing property value, the **H2minusO Flow Management Device** delivers immediate payback and long-term financial resilience for building owners. The 10-year warranty ensures sustained returns, making it a high-value investment that offsets rising utility rates while increasing the overall asset value of multi-residential properties. In addition, H2minusO **automatically adapts** to fluctuations in water consumption, ensuring continuous efficiency without recalibration, while maintaining tenant satisfaction by preserving consistent water pressure.

### Properties Included in the Multi-Residential Portfolio

Property	Property
21 Columbia Street	165 Barrington Avenue → 250 units
665 Roselawn Avenue	Twin Towers Multi-Residential → 423 units
6030 Bathurst Street → 335 units	150 Darling → 121 units
Guelph REIT Multi-Residential → 69 units	129 Wellington
Multi-Residential Building in Toronto → 329 units	75 Broadway → 336 units



July 10, 2014

**Location:** Waterloo, Ontario, Canada

**Facility Type:** Island Management Inc. *Multi-Residential Building – 21 Columbia Str. - 41units*

## 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 21 Columbia Street West - , Waterloo, 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 2" 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 15 months up to the Jan, 2014 billing period. We also took daily readings for 63 days prior to the install and then for an additional 19 days after the installation. 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 and consumption trending.

Although this facility is a student residence and therefore subject to fluctuations in occupancy, that would impact consumption, our analysis showed it 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. 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. Row one in Table 1 shows that the prior year daily average consumption was in-line with the pre-measurement period as well as the same period as the testing timeframe.

As depicted in Table 1 row 1, we established an overall annual daily and per unit consumption level. Row 2 shows there was an increase of 5.17% in consumption during the same period in the prior year relative to the yearly average. This is the case because the averages shown here, for this timeframe, are during high occupancy times for the university. It is further supported by the identical average reflected for the 63 day pre-installation period – 31.11 m3 for the same period prior year and the actual pre-installation period. Row 4 shows the 19 day average of 24.08 m3 post installation of H2minusO which represents a significant decrease in consumption of 22.61% as compared to the 63 day pre-installation period and the same period prior year. Compared to the baseline results, this facility experienced a 22.61% reduction in the average daily consumption, clearly pointing to improved meter reading efficiency.

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 - 363 days (prior year)	22-Feb-13	29-Jan-14	29.58	0.72	0.00%
Consumption for - same period (prior year)	23-May-13	25-Jul-13	31.11	0.76	-5.17%
Consumption for - 63 days (pre H2minusO retrofit)	16-Apr-14	18-Jun-14	31.11	0.76	0.00%
Consumption for - 19 days (post H2minusO retrofit)	18-Jun-14	07-Jul-14	24.08	0.59	22.61%



Chart 1:

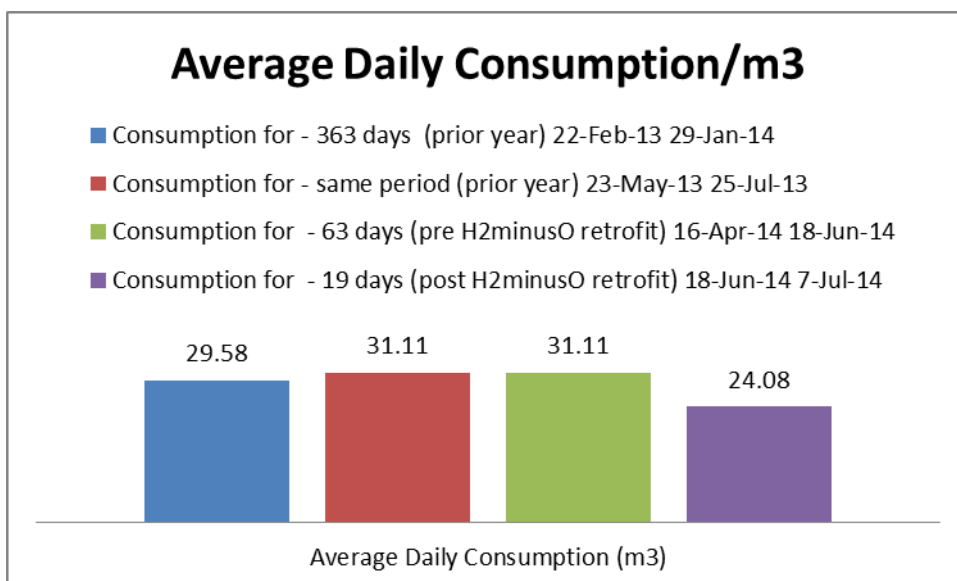


Chart 1 shows the daily water consumption recorded period over period based on water bills and actual meter readings.

Chart 2:

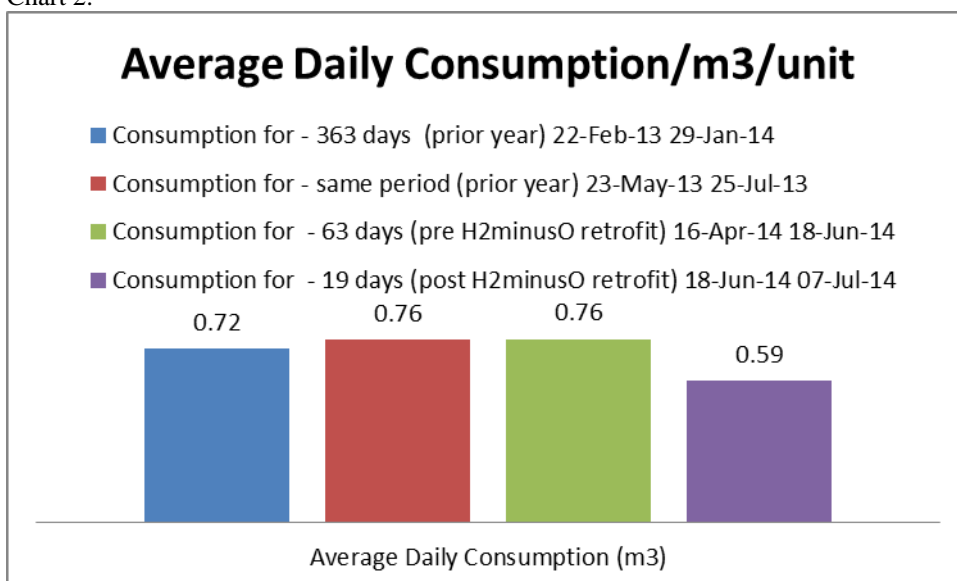


Chart 2 shows the daily water consumption per unit period over period based on water bills and meter readings.

Chart 3:

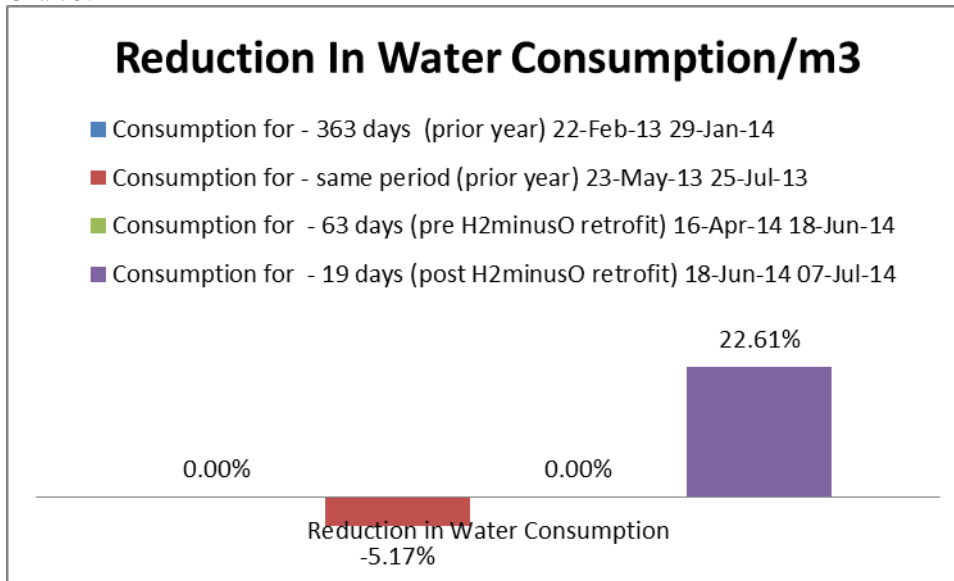


Chart 3 shows the actual percentage savings recorded period over period based on water bills and actual meter readings. The percentage savings can be applied directly to overall water cost to determine reduction in water bills.

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

Based on the initial audit of the facility and analysis of 15 months of water bills, we determined that this building would yield a payback savings of approximately 6.4% Factoring in the average 2013 and 2014 water rates and projected reduction in consumption billing; this building had an expected payback at 1.8 years. The post installation results and analysis indicate the projected savings will be 22.61% with a payback in .50 years

Table 3: Estimated vs measured results

	Estimated Payback (yrs)	Measured Payback (yrs)	Difference (yrs)
Projected Payback	1.8	.5	1.3

### Summary

The installation of the 2" 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 22.61% on their water consumption readings. Furthermore, the financial metrics and ROI are based on the average of 2013 and 2014 water rates, so the actual dollar savings on future consumption will increase provided water rates continue to increase.

July 10, 2014

**Location:** Toronto, Ontario, Canada

**Facility Type:** Timbercreek Property Management *Multi-Residential Building – 665 Roselawn Ave – 87 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 665 Roselawn 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!

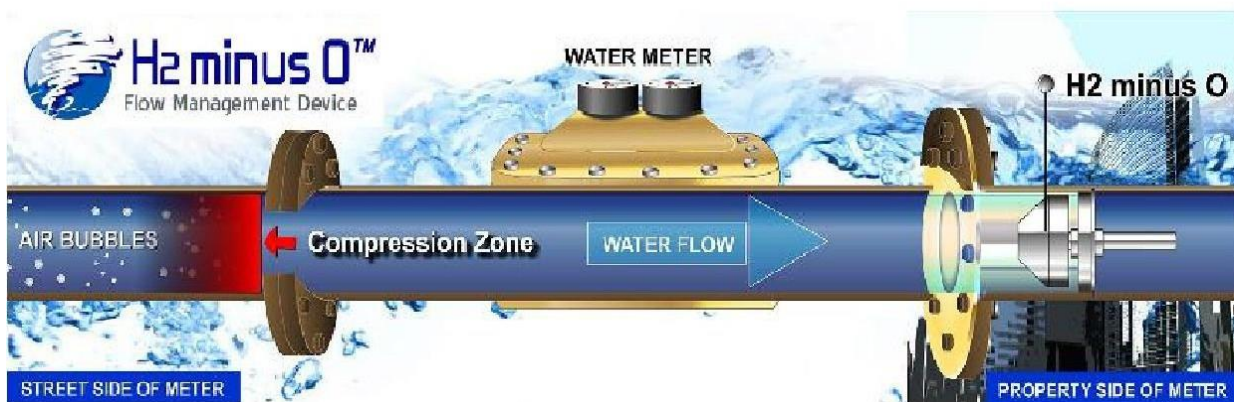
Water meters have changed little since their beginning and have a major fault in their design: air in your water lines is read as water by your meter. So for ALL end users there is a very high probability your meter is billing you for water use, but not your actual consumption.

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 1.5" 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 43 days prior to the install and then for an additional 34 days after the installation. This 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 and consumption trending.

It is also important to note that this facility completed water saving toilet retrofits early in the beginning of the 2<sup>nd</sup> 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, it still required us to conduct detail analysis on water consumption as a 4 part process (see Table 1) rather than a typical 2 part process, which usually consist of a pre and post 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 against 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 more than 14%. This brought the average consumption per unit closer to other similar profile buildings. Row 3 shows the 43 day average of 46.48 m3 pre-installation of H2minusO. Row 4 shows a 34 day post-installation consumption average of 42.71 m3, which represents a significant decrease in consumption of 8.11% compared to the 43 day pre-installation period. Compared to the baseline results, this facility experienced an 8.11% 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 - 458 days	1-Mar-11	1-Jun-12	56.93	0.6544	0.00%
Consumption for – 334 days (post toilet retrofit)	1-Jul-12	1-May-13	48.84	0.5614	14.21%
Consumption for - 43 days (pre H2minusO retrofit)	1-Apr-14	14-May-14	46.48	0.5342	4.84%
Consumption for – 34 days (post H2minusO retrofit)	5-Jun-14	9-Jul-14	42.71	0.4909	8.11%

Chart 1:

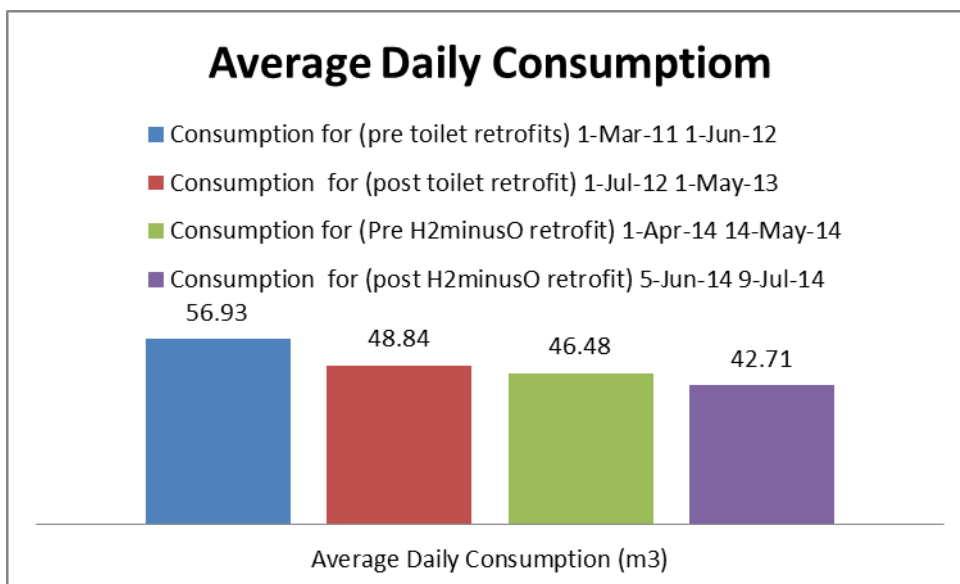


Chart 1 shows the daily water consumption recorded period over period based on water bills and actual meter readings.

Chart 2:

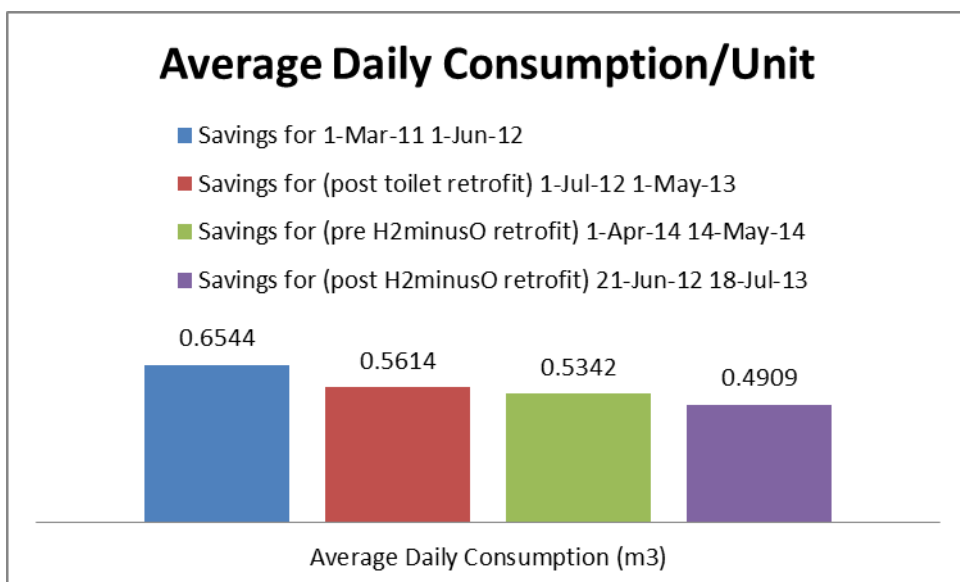


Chart 2 shows the daily water consumption per unit period over period based on water bills and meter readings.

Chart 3:

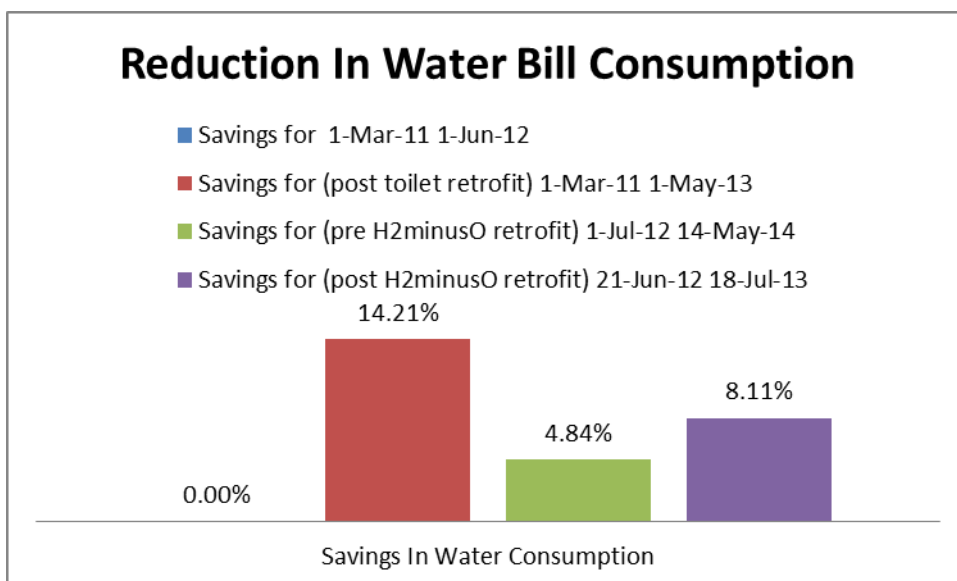


Chart 3 shows the actual percentage savings recorded period over period based on water bills and actual meter readings. The percentage savings can be applied directly to overall water cost to determine reduction in water bills.

### 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 6.4%. Factoring in the average 2012 and 2013 water rates and projected reduction in consumption billing, this building had an expected payback at 1.1 years. The post installation results and analysis indicate the projected savings will be 8.11% with a payback in .82 years

Table 3: Estimated vs measured results

	Estimated Payback (yrs)	Measured Payback (yrs)	Difference (yrs)
Projected Payback	1.1	.82	.28

### Summary

The installation of the 1.5 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 8.11% 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.



July 10, 2014

**Location:** Toronto, Ontario, Canada

**Facility Type:** Timbercreek Property Management *Multi-Residential Building - 6030 Bathurst St. - 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 at 6030 Bathurst Street - , 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!

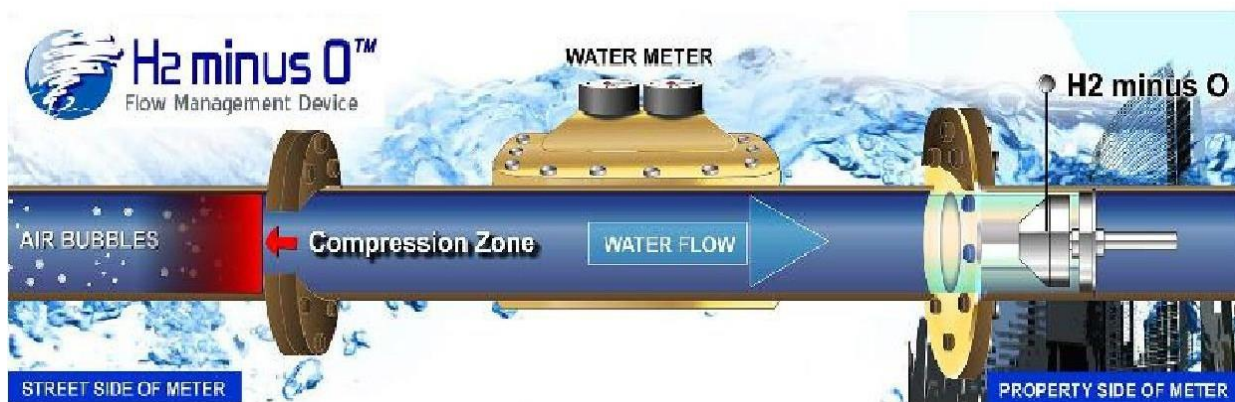
Water meters have changed little since their beginning and have a major fault in their design: air in your water lines is read as water by your meter. So for ALL end users there is a very high probability your meter is billing you for water use, but not your actual consumption.

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 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 10<sup>th</sup>, 2014. This had the obvious impact of increasing consumption during the relevant measurement period. Nevertheless we continued to capture the readings to analyse 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 of 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 2<sup>nd</sup> 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 consist of a pre and post 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 against 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:

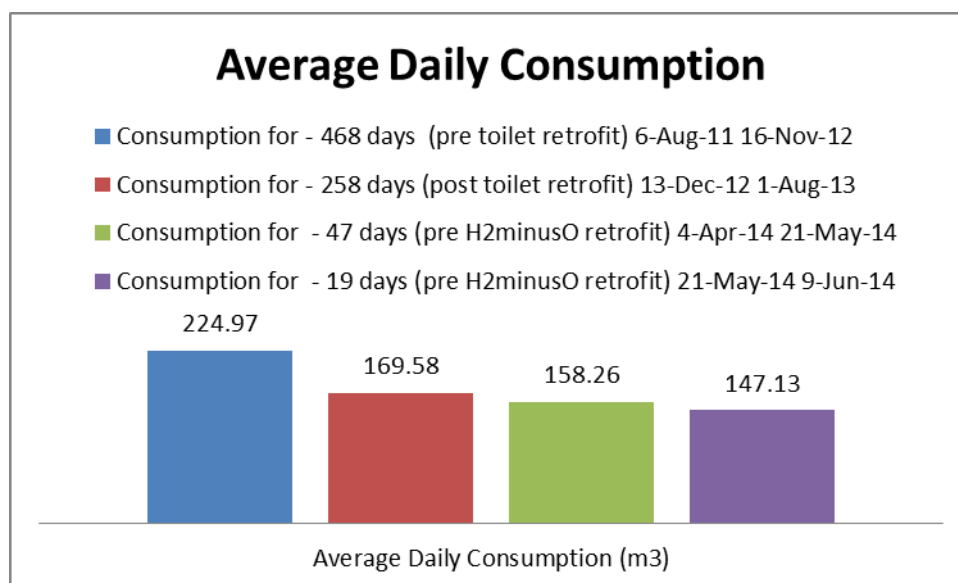


Chart 1 shows the daily water consumption recorded period over period based on water bills and actual meter readings.

Chart 2:

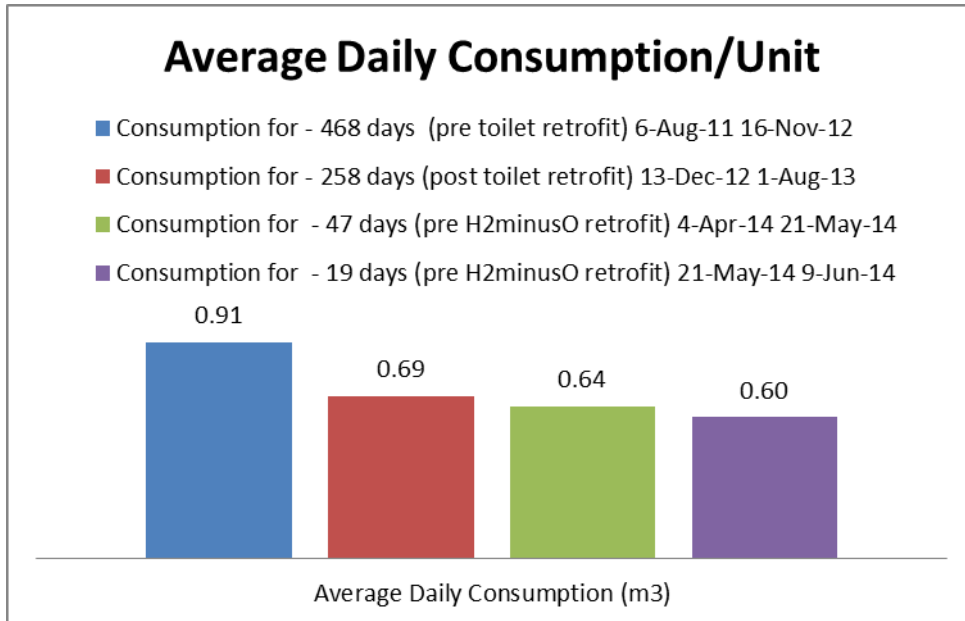


Chart 2 shows the daily water consumption per unit period over period based on water bills and meter readings.

Chart 3:

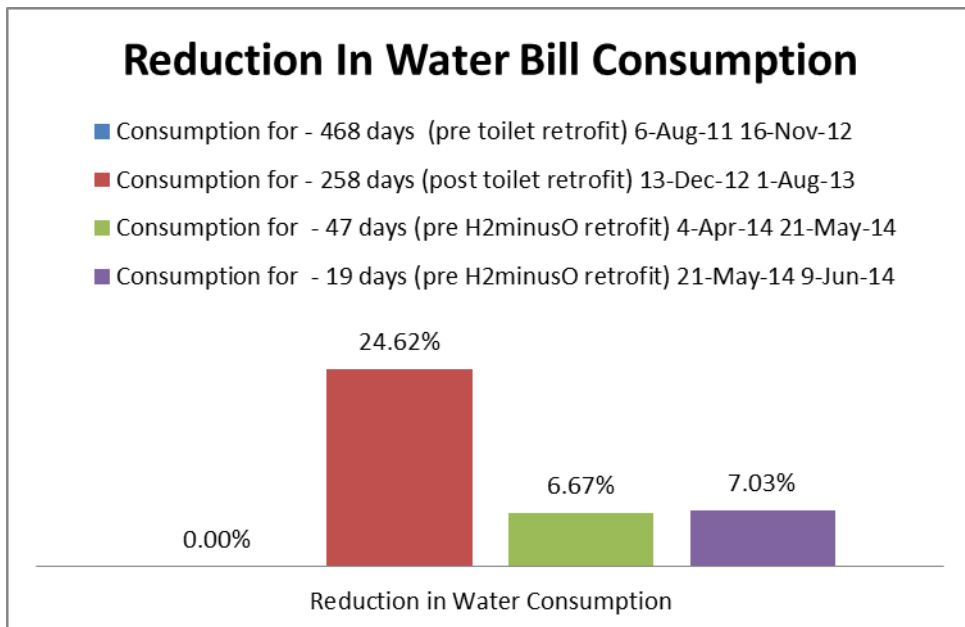


Chart 3 shows the actual percentage savings recorded period over period based on water bills and actual meter readings. The percentage savings can be applied directly to overall water cost to determine reduction in water bills.



### **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.

Aug 8th, 2013

**Location:** *Guelph, Ontario, Canada*

**Facility Type:** *REIT Multi-Residential Building - 69 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 Guelph, Ontario. These results demonstrate the value-add our device can provide your organisation 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 1.5" 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 1.5 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 24 months of billing and consumption data as well as consumption data for the months prior to the install. This provided us with sufficient data to complete a comprehensive pre-installation 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. One of the things we immediately noted was that the consumption trending had increased by nearly 17% (see Table 1) from year 1 to year 2. The trending was also gradual enough that it pointed to changes in consumption behaviour being the most likely source. So we needed to understand how this trending pattern was progressing from the last meter reading taken (as per March billing details) on March 13, 2013.

As detailed in Table 1 below, we noted that there was still a pattern of increasing consumption up to the installation of the H2minusO valve. In the 27 day period immediately before the installation the daily consumption levels had reached nearly 31 m3 per day. Furthermore the median, averages and data distribution during selected periods in May 2013, June 2013 and the period after installation revealed additional patterns pointing to the improved efficiency of the meter readings due to the H2minusO valve. In the periods before the installation (see Table 2) the first observation shows the average daily consumption was higher than the median daily consumption. These results indicated that there was a greater tendency for higher daily consumption above the median (53.3%) thus indicating increasing daily consumption patterns. In the second observation (see Table 2) although the average was below the median, 60% of the daily consumption numbers (see table 3) were distributed above the average of 30.98 m3, again supporting our findings of the increasing consumption patterns. In comparison, the post installation average was lower by 14.78% and the median was lower by 13.3%. Although the average daily consumption was above the median and the spread was also higher than the pre-installation period, only 47.6% of the daily consumption numbers were above the median, supporting the results of the lower daily average. Furthermore the lowest recorded reading during the pre-installation period was 23.8 m3 (see table 3) compared to 18.4 m3 (see table 3) during the post-installation period. These results also point 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	2-Mar-11	2-Feb-12	24.75	0.3587	0.00%
Consumption for	2-Feb-12	1-Feb-13	28.93	0.4193	-16.89%
Consumption for	13-Mar-13	18-Jul-13	29.14	0.4223	-0.73%
Consumption for 27 Days Prior to Install	21-Jun-12	18-Jul-13	30.98	0.4490	-6.31%
Consumption for 21 Days Post Install	18-Jul-13	8-Aug-13	26.4	0.3826	14.78%

Table 2: Period Analysis - Median vs Average

Measurement Period	Median Daily Consumption	Average Daily Consumption	Difference
May	28.70	29.44	0.74
June/July	31.05	30.62	-0.43
July/Aug - Post Installation	26.9	26.40	-0.50

When we examined daily consumption relative to the averages for each of the periods, it was clear that there was a significant difference between the pre and post installation periods. These observations have been captured in Table 3.

Table 3: Daily Consumption Comparison

Measurement Criteria	Before Installation (27 days/30.98 average)	After Installation (21 days/average 26.40)
Percentage of days that daily consumption above the period average	60%	47.6%
Lowest daily consumption	23.8	18.4

Chart 1:

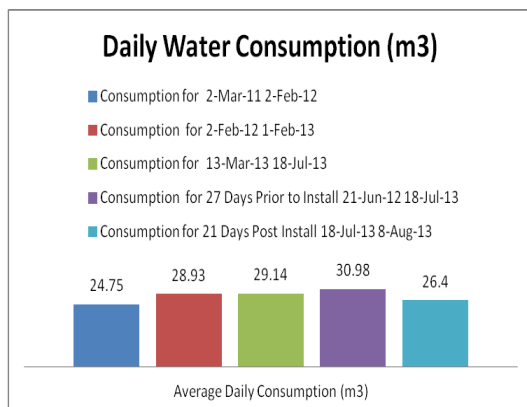


Chart 1 shows the daily water consumption recorded period over period based on water bills and actual meter readings.

Chart 2:

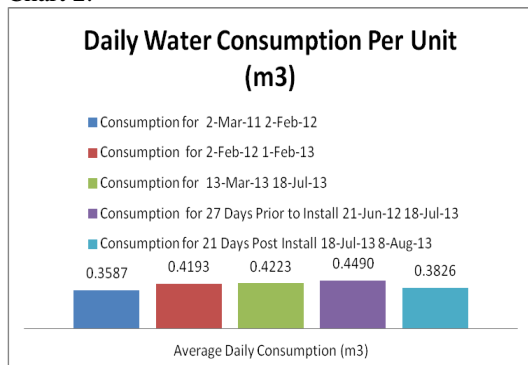


Chart 2 shows the daily water consumption per unit period over period based on water bills and meter readings.

Chart 3:

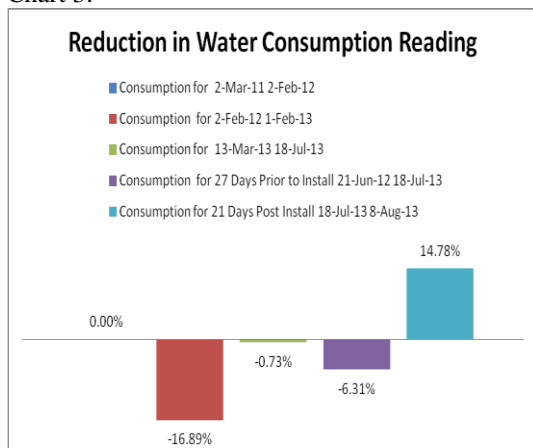


Chart 3 shows the actual percentage savings recorded period over period based on water bills and actual meter readings. The percentage savings can be applied directly to overall water cost to determine reduction in water bills.

### 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 qualified for our minimum 10% savings guarantee. Factoring in the average 2012 and 2013 water rates and projected reduction in consumption billing, this building had an expected payback at just over 2 years. The post installation analysis now indicate the projected payback will be 1.28 years

Table 4: Estimated vs Measured results

	Estimated	Measured	Difference
Percentage Savings	10.00%	14.78%	4.78%
Daily Reduction in Water Billing (m3)	3.10	4.58	1.48



## **Summary**

The installation of the 1.5 inch H2minusO FMD will generated significant reduction in water consumption usage 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 14.78% on their water consumption. Furthermore, given that the financial metrics and ROI are based on the average of 2012 and 2013 water rates, actual dollar savings on future consumption will increase provided water rates continue to increase year over year.

May 19, 2013

**Location:** Toronto, Ontario, Canada

**Facility Type:** 329 Unit Multi-Residential with a small amount of retail/commercial space

## 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 organisation and business. Virtually any facility that consumes water can benefit from our water saving technology.

## Background

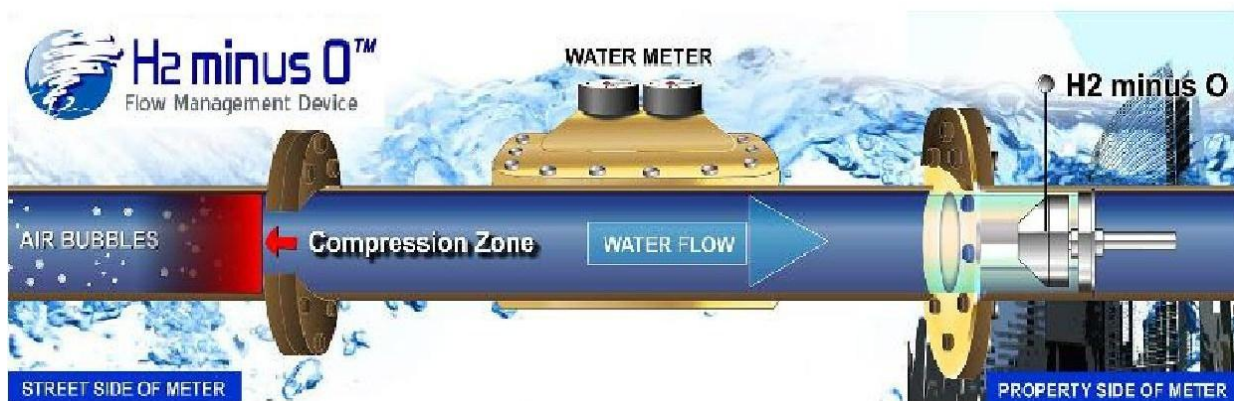
Water meters have changed little since their beginning and have a major fault in their design: air in your water lines are read as water by your meter. So for ALL end users there is a very high probability your meter is billing you for water use, but not your actual consumption.

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. Average customers have received over 19% savings on their billed water usage. Buildings with low water pressure will average about 8-10% savings.

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 3 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 initial analysis requires a detail study of many aspects of the buildings consumption patterns and history (minimum of 2 years of water bill history) this includes understanding many of the factors that can have significant impact on how much water a building consumes. Some of the key factors are:

1. Occupancy levels
2. Events such as a leak
3. If and when major water saving retrofits were completed
4. Type of facility e.g. seniors residential; manufacturing; office high-rise; Hotel
5. The incoming water pressure from the municipal water source

At this facility, our analysis indicated that, water consumption, on a per unit bases was above average for this apartment building. It was also important to note that the facility had major water saving retrofits completed in Jan and Feb of 2013. This fact was extremely important 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 grossly inaccurate ROI analysis. This required us to conduct detail analysis on water consumption as a 4 part process (see Table 1 and Table 1A) rather than a typical 2 part process, which is usually consist of a pre and post H2minusO FMD install.

1. Period 1 - 22 months prior to water saving retrofits
2. Period 2 - 2 months during water saving retrofits ( this was required because there was a rate increase Jan 1st. Plus there was the roll out of the in-suite water saving retrofits which created multiple overlapping consumption levels factored in with the new rates)
3. Period 3 - post water saving retrofits (non H2 FMD retrofit)
4. Period 4 - Post H2minusO FMD retrofit

Table 1: Period Analysis

Measurement Type	Measurement Period - Start	Measurement Period - End	Average Daily Consumption (m3)	Average Daily Consumption m3 (per unit)	Reduction in Water Consumption
Pre Water Saving Retrofits	Mar-11	Dec-12	294	0.8936	0.00%
Water Saving Retrofits	Jan-13	Feb-13	243	0.7386	17.35%
Post Water Saving Retrofit	Mar-13	Apr-13	230	0.6991	21.77%
Post H2minusO FMD Installation*	May-13	May-13	175	.05319	23.91%

\*Meter Reading at time of installation and 6 days after installation

Table 1A: Post H2 FMD Installation

Meter Reading	High Flow	Low Flow	Totals
13-May-13	593066.0	5491.2	598557.2
19-May-13	593887.0	5721.0	599608.0
Totals	821.0	229.8	1050.8



Chart 1:

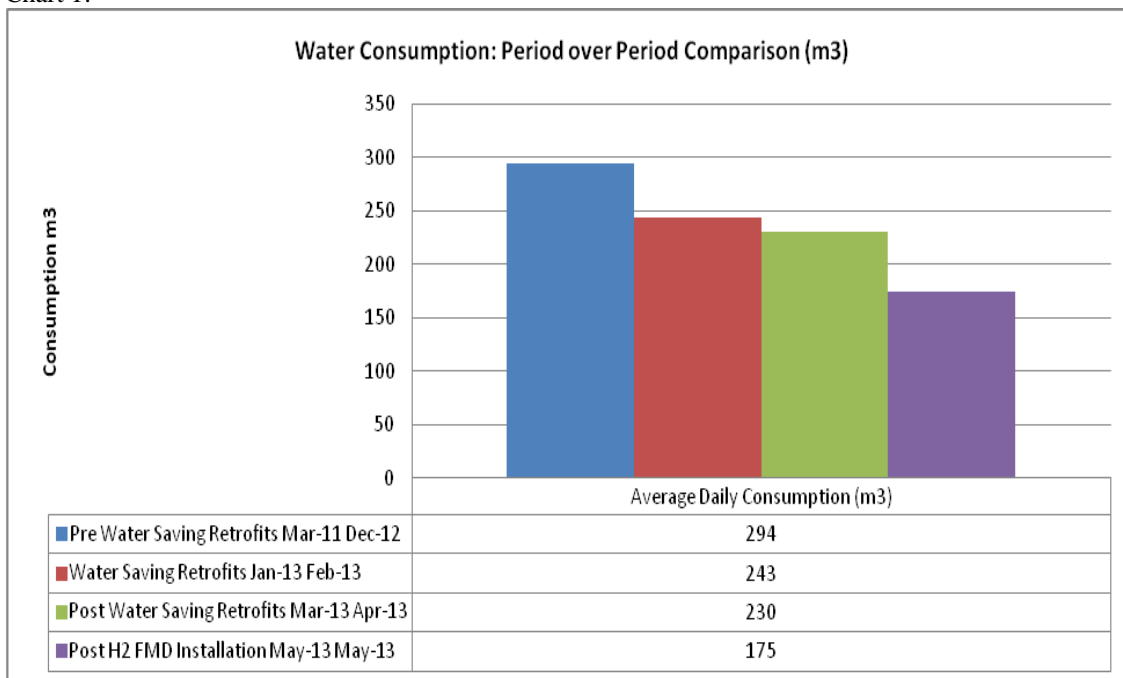


Chart 1 shows the actual savings recorded period over period based on water bills and meter readings.

Chart 2:

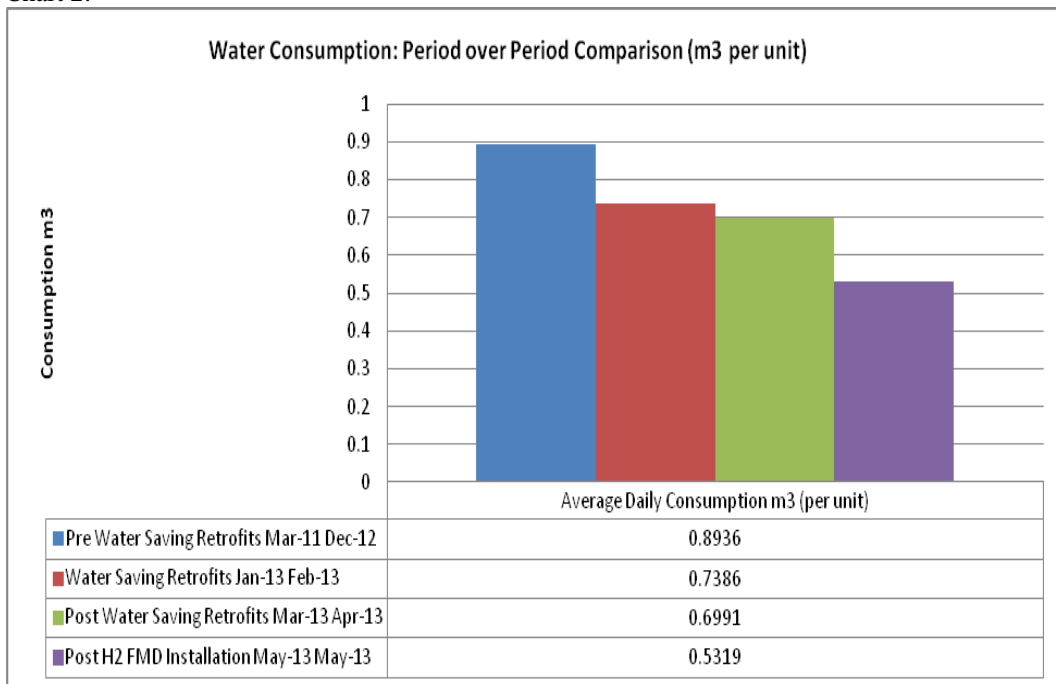


Chart 2 shows the actual savings recorded period over period based on water bills and meter readings. The per unit measurement allows us to make a relative comparison over all such buildings within the apartment high-rise residential vertical. Prior to any water saving retrofits this building consumed water at an above average rate

Chart 3:

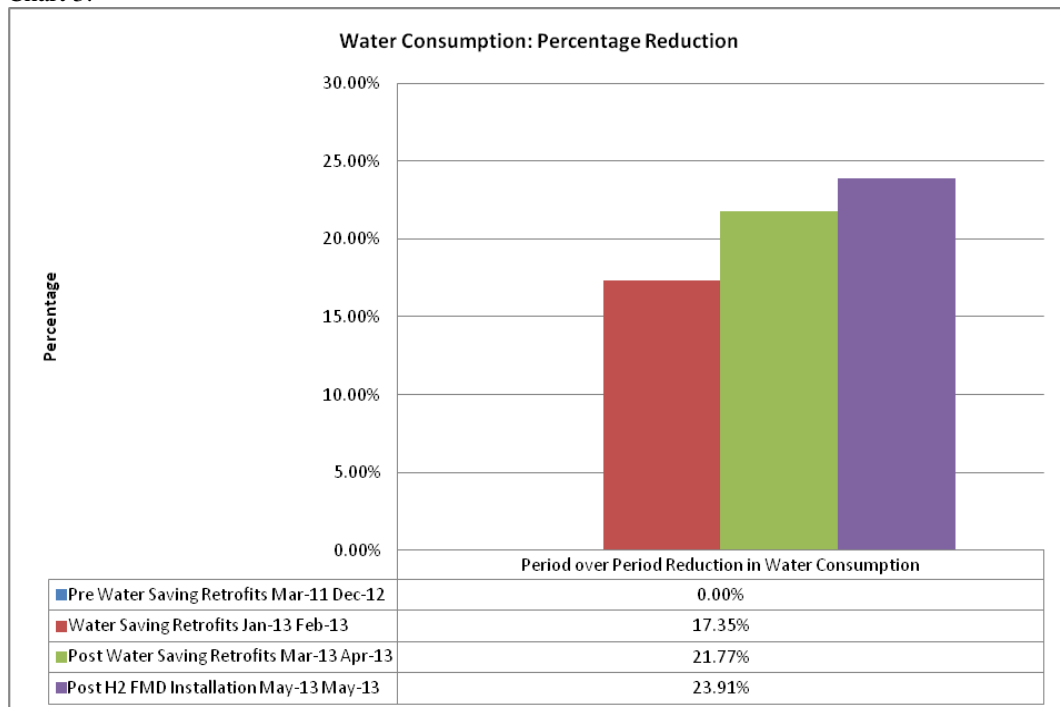


Chart 3 shows the actual percentage savings recorded period over period based on water bills and meter readings. The percentage savings can be applied directly to overall water cost to determine reduction in water bills.

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

Based on the initial analysis of 24 months of water bills and an audit of facility, we determined that this building qualified for our minimum 10% savings guarantee. Factoring in the 2013 water rates, and projected reduction in consumption we estimated a 11.5 month payback on the original investment.

Our post installation data capture and analysis of meter readings show savings of 23.91% on the current average monthly water consumption. This will generate a payback of less than 6 months on the original investment. The results at this facility is above the average experienced at other installations by about 5%.

Table 2:

	Estimated	Measured	Difference	10 Year ROI
Percentage Savings	10.00%	23.91%	13.91%	N/A
Daily Reduction in Water Consumption (m3)	23.000	54.990	31.99	N/A
Daily Reduction in Water Consumption (m3 per unit)	0.070	0.167	0.097	N/A
Pay Back (in months)	11.5	5	6.5	N/A

## **Summary**



The installation of the 3" H2minusO FMD will generated significant reduction in water consumption usage 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 23.91% on their water consumption. Furthermore, given that the analysis is based on 2013 water rates, actual dollar savings on future consumption will increase provided water rates continue to increase year over year.

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!

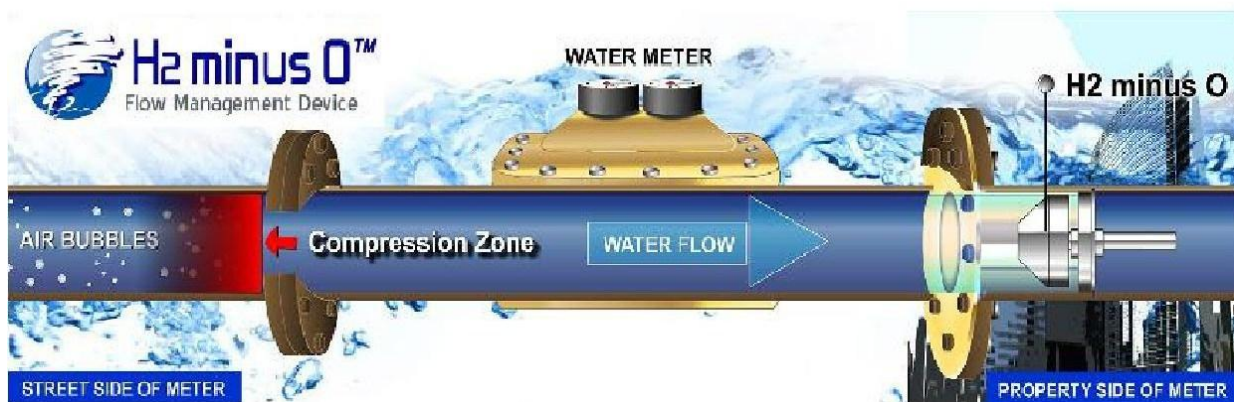
Water meters have changed little since their beginning and have a major fault in their design: air in your water lines is read as water by your meter. So for ALL end users there is a very high probability your meter is billing you for water use, but not your actual consumption.

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:

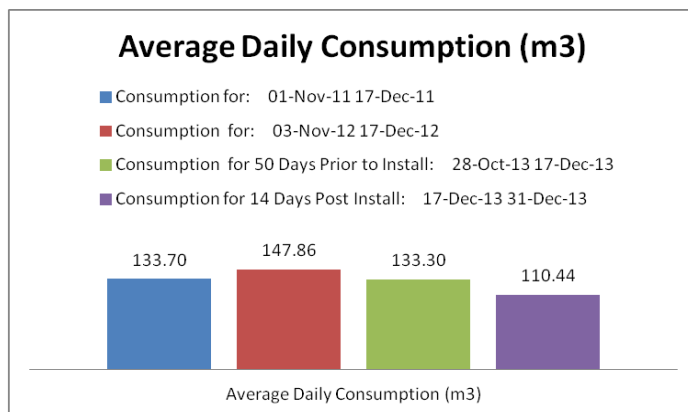


Chart 1 shows the daily water consumption recorded period over period based on water bills and actual meter readings.

Chart 2:

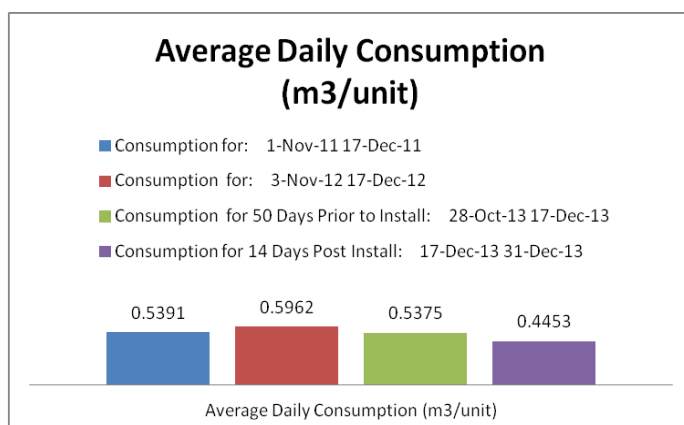


Chart 2 shows the daily water consumption per unit period over period based on water bills and meter readings.



Chart 3:

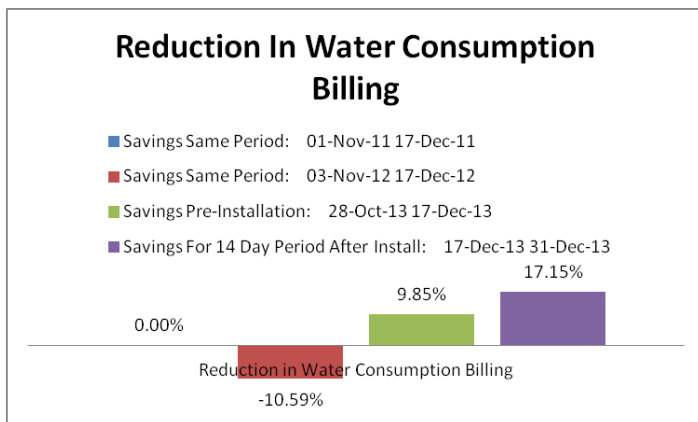


Chart 3 shows the actual percentage savings recorded period over period based on water bills and actual meter readings. The percentage savings can be applied directly to overall water cost to determine reduction in water bills.

### **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.

July 26, 2013

**Location:** Toronto, Ontario, Canada

**Facility Type:** Twin Towers Multi-Residential Buildings - 423 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 organisation and business. Virtually any facility that consumes water can benefit from our water saving technology.

## Background

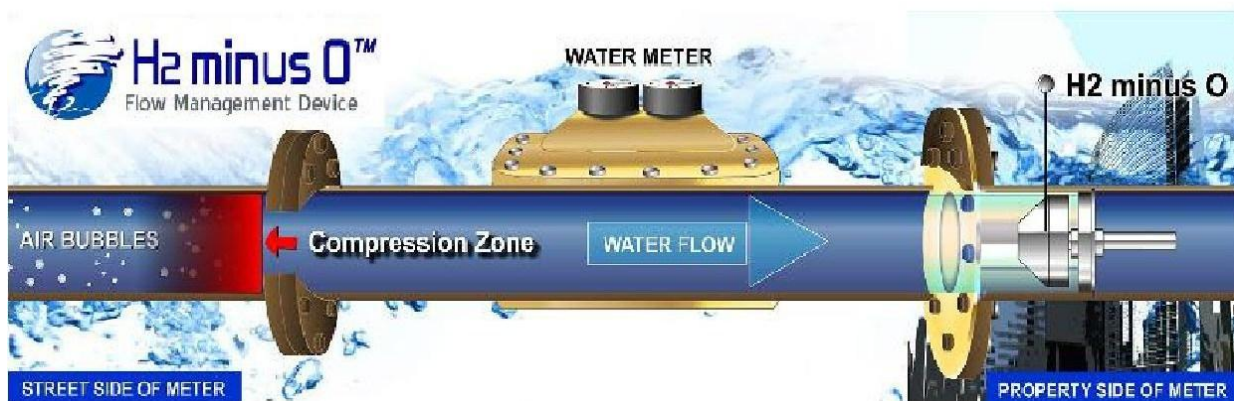
Water meters have changed little since their beginning and have a major fault in their design: air in your water lines is read as water by your meter. So for ALL end users there is a very high probability your meter is billing you for water use, but not your actual consumption.

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. Average customers have received over 19% savings on their billed water usage. Buildings with low water pressure will average about 8-10% savings.

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 4" 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*

The two buildings share a common water meter located in the mechanical room of building 1. 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 still had to factor in many of the unforeseen events that can skew the consumption data. We used 24 months of consumption data so that we could complete a comprehensive pre-installation analysis. This analysis explored such things as consumption patterns, abnormal or suspicious periods of consumption, comparison of same period consumption year to year and consumption trending. Some of the key factors considered during our analysis included:

1. Occupancy levels
2. Events such as a leak
3. Type of facility e.g. seniors residential; manufacturing; office high-rise; Hotel
4. The incoming water pressure from the municipal water source

Table 1: Period Analysis

Measurement Type	Measurement Period - Start	Measurement Period - End	Average Daily Consumption (m3)	Average Daily Consumption Per Unit (m3)	Reduction in Water Consumption Billing
Consumption for same month prior year	Jun-12	Jun-12	279.00	0.660	0.00%
Consumption for same month current year	Jun-13	Jun-13	294.70	0.697	-5.63%
Consumption for month after install	Jul-13	Jul-13	250.00	0.591	15.17%

Chart 1:

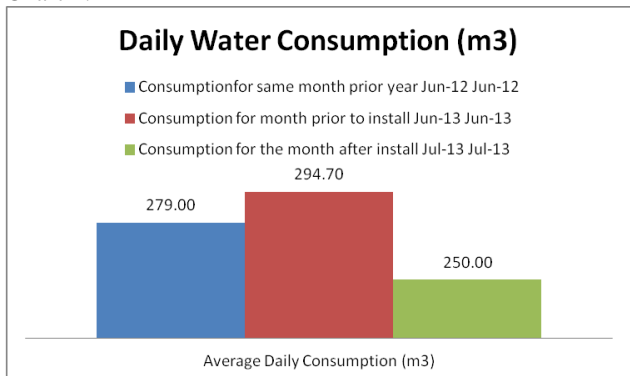


Chart 1 shows the daily water consumption recorded period over period based on water bills.

Chart 2:

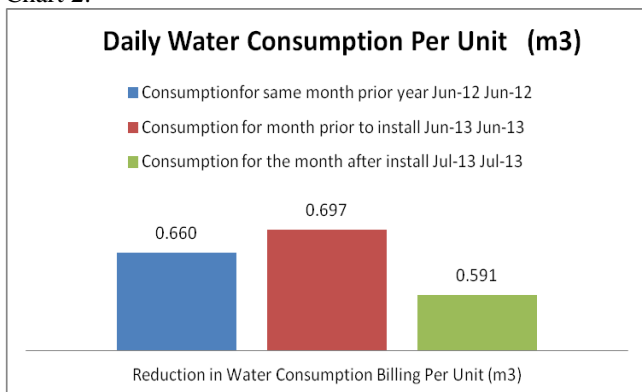


Chart 2 shows the daily water consumption on a per unit basis recorded period over period based on water bills.

Chart 3:

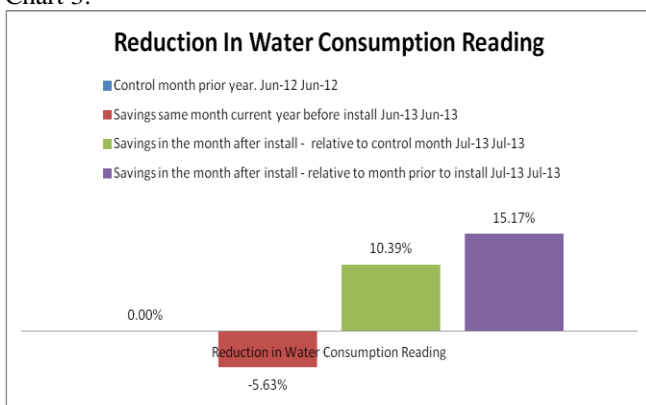


Chart 3 shows the actual percentage savings recorded period over period based on water bills. The percentage savings can be applied directly to overall water cost to determine reduction in water bills.



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

Based on the initial analysis of 24 months of water bills and an audit of facility, we determined that this building qualified for our minimum 10% savings guarantee. Factoring in the 2013 water rates and projected reduction in consumption billing this building can expect to get a payback within 15 months.

Table 2:

	Estimated	Measured	Difference
Percentage Savings	10.00%	15.71%	5.71%
Daily Reduction in Water Billing (m3)	29.47	44.47	15.00

### **Summary**

The installation of the 4" H2minusO FMD will generated significant reduction in water consumption usage 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 15.17% on their water consumption. Furthermore, given that the financial metrics and ROI are based on 2013 water rates, actual dollar savings on future consumption will increase provided water rates continue to increase year over year.