

CASE STUDY: Water Loss in High-Rise Residential Property

A high-rise residential property faced ongoing issues with its heating hot water boiler system and hot water storage tank. Newly installed filters were clogging quickly, and chemical inhibitor levels were found to be very low. Initial laboratory testing revealed significant amounts of sludge and debris in the water, indicating substantial corrosion of the heating pipes and boilers. On October 21, 2020, a new chemical treatment system and side-stream filtration, along with a FLOWIE water flow sensor, were installed on the hot water make-up system. The system was immediately flushed and cleaned due to the identified corrosion. The FLOWIE water meter began monitoring the system, providing real-time data on water flow.

During follow-up testing on December 23, 2020, the chemical inhibitor levels were again extremely low, and the side-stream filter had become clogged once more. The FLOWIE sensor revealed that a large amount of cold water had been consumed since the initial installation, far exceeding normal usage levels. This data indicated that the heating system was experiencing a significant leak, causing a loss of over 1,500 liters of hot water daily at temperatures as high as 180°F (82°C).

A plumbing contractor was brought in to investigate further and discovered a major leak in the heating hot water pipe, which was buried under a concrete floor. This pipe was responsible for supplying hot water to the radiators in the foyer and lounge areas. On December 24, 2020, the heating hot water supply and return piping were shut off, effectively stopping the water loss.

Summary:

- The major water loss was halted by disconnecting the broken pipe, preventing further energy and water waste.
- Continuous introduction of raw water to the system caused oxygen buildup, accelerating corrosion in the iron pipes, fittings, and circulator pumps, contributing to the debris found in the system.
- Corrosion and deterioration of the system components were directly linked to the water loss and continuous raw water inflow.
- The annual cost of lost energy and water due to the leak was estimated at XXXXX + 25%.



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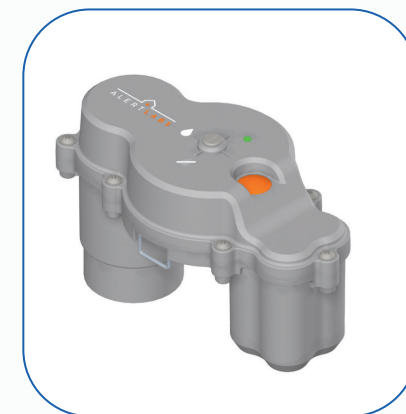
FLOWIE - Water Flow Sensor

The FLOWIE is a cellular water leak detector that straps right on to your water meter. It creates a database of water usage patterns and detects abnormalities. FLOWIE monitors and sends alerts right to your phone or computer as they happen. This includes Power outages, temperature fluctuations, humidity, leaks and unusual water usage.



SHUTTIE – Automatic Water Shut-off Valve

The SHUTTIE is a remote water shut-off valve. SHUTTIE connects to a cellular signal via the FLOWIE sensor, and can automatically shut off water lines in commercial and residential properties when the FLOWIE & FLOODIE detect a leak. When Property Managers receive an alert that a leak or flood is occurring, they can remotely stop water flow until the issue is resolved.



FLOODIE - Flood Sensor

The FLOODIE is a portable flood sensor that detects leaks and floods anywhere in your building. FLOODIE is used to detect water in unwanted areas such as around the base of water heaters, water softeners, and toilets. It connects to a cellular signal via the FLOWIE or RELAY sensor and alerts you in real time to water damage incidents.



SENSOR RELAY – Cellular Communications Hub

The Sensor Relay receives data sent from all WATERSHIELD sensors and uploads it to the AlertAQ™ App and our online dashboard platform. The Sensor Relay facilitates cost saving insights and instant phone call, text, in-app and email alerts.



HUMIE – Humidity Sensor

The HUMIE is a cellular humidity detector. HUMIE connects to a cellular signal via the FLOWIE or RELAY sensor and alerts you in real time to excessively high temperature and % relative humidity levels, helping to protect you from mold growth and property damage.



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