

UV Pure® Case Study

Application:	Municipal/Institutional
Solution:	Hallett® 30
Location:	McMaster University, Hamilton Ontario



Pure, safe water.
Always.

Rainwater for reuse as drinking water - McMaster University, Engineering Technology Building

Objective: Treating rainwater for reuse as drinking water

When McMaster University in Hamilton, Ontario built their new Engineering Technology Building, they used the latest state-of-the-art technology not only to achieve LEED Gold certification, but also to create a living laboratory to train students on the building systems of the future. One of the components is a rainwater harvesting system that collects, filters and disinfects rainwater for non-potable and potable use in the building.

Challenge

As the first of its kind in Canada this project presented considerable challenges to the team designing the system. Without a precedent from similar projects, the team had to do their homework to source the right products for the system to achieve the desired outcomes.

The top two priorities were economic sustainability and the creation of valuable learning opportunities for engineering students. That meant keeping operating costs to a minimum while utilizing leading-edge technology to prepare students for today's ever-evolving world of water treatment.

Another challenge was the lack of a consistent building and plumbing code for gray water in Canada. Ensuring system compliance can be challenging for projects, and often depends on the specifying engineer's recommendation. In Ontario, Canada there has been some relaxation in the building and plumbing codes to allow for rainwater harvesting.

System Design

The rainwater is collected on two roofs with white reflective membranes and directed to two 25 cubic metre (11,000 gallon) cisterns. After the rainwater is passed through sand, carbon and micro filters, this non-potable or gray water is used for toilets and urinals.

The potable water is produced after it passes through a UV Pure Technologies' Hallett UV disinfection system. This potable water is then directed through the building for use in fountains and the on-site coffee shop. All of the systems have redundancy built in, and could accommodate up to 50 GPM.

Innovative/unique features

The capacity to treat rainwater to potable standards is a first for any Canadian institution. The system was designed with multiple redundancies built in, with two of everything and parallel back ups running.

As a research facility, continuous web-enabled remote and onsite monitoring tracks performance and finds trends for analysis and optimization. If one element needs to be isolated for a student demonstration, the whole system doesn't need to shut down.

Results

The performance of the site has been excellent. "There has not been a bad sample out of the system since it was turned on over two years ago," said Paul Vizsy, first class stationary engineer and owner of PWBS (pwbs.ca) who implemented the system installation and is the site's operator and water treatment specialist. One element the site operator particularly appreciates is the lack of maintenance and associated costs required for the UV Pure system, significantly less than conventional UV products.

"UV Pure's Halletts have exceeded all of our objectives for potable water purification, for its excellent quality, appropriate pricing and the beauty of such limited maintenance," said Tony Cupido, P. Eng., former, Assistant Vice President Facility Services (and current PhD student with interest in green buildings and rainwater harvesting).

