Rainwater Harvesting

A Way to Meet Targets for Living Water Smart in BC

BY KIM STEPHENS

In B.C.'s water plan called Living Water Smart it states 50 per cent of new water municipal needs will be acquired through conservation by 2020.

What does this statement of provincial policy mean for architects, engineers and contractors in B.C.? It means that rainwater harvesting will emerge as a substitute source of water supply, particularly for new commercial and institutional buildings. An example is the Discovery Green building project in Burnaby. Rainwater harvesting will contribute to a reported 72 per cent reduction in reliance on the regional water system.

What is Living Water Smart?

Released in June 2008, Living Water Smart comprises more than 40 actions and targets, including ones that focus on ways to save water and using the savings to meet growth in demand. "In addition to and in order to help meet the 50 per cent target, government will by 2010 mandate purple pipes in new construction for water collection and reuse; and the Green Building Code will require water-conserving plumbing features," notes Lynn Kriwoken, director, Innovation and Planning in the Water Stewardship division of the Ministry of Environment.

What is Rainwater Harvesting?

Rainwater harvesting is the practice of collecting rainwater for beneficial use. Usually this refers to collection of rainwater from a rooftop and storing it for later use in or near the point of collection. Rainwater harvesting systems are simple in design, consisting of a collection system, storage tank or cistern, and pump and treatment systems.

Harvested rainwater may be potentially used for virtually any purpose. Although rainwater may be treated for use as drinking water, the most cost-effective application of rainwater harvesting in urbanized areas is usually outdoor use such as lawn and garden watering, and indoor use that does not require potable water such as toilet flushing.

Climate change is emerging as a driver for rainwater harvesting

A Perspective on the Recent Past

It was not too long ago that rainwater harvesting in the urban regions of B.C. was generally viewed as unnecessary and unlikely. In April 2002, Eric Bonham co-delivered a presentation on water sustainability.

"We thought long and hard about what position to take on rainwater harvesting," recalls Eric Bonham, who was then a director with the Ministry of Municipal Affairs. "We decided it was important to spur practitioners to make the mind-shift from IF to WHEN. So we made what was then a bold prediction. Looking ahead, we said, there will be increased emphasis on an integrated approach to managing the urban water cycle because of the 'logical links' between water conservation and drought management, drinking water treatment and rainwater harvesting."

Three years later, the Water Sustainability Action Plan partnered with CMHC and others to organize the 2005 Rainwater Harvesting on the West Coast Workshop Series. The Vancouver and Victoria events were built around Dr. Peter Coombes from Australia and Klaus König from Germany, respectively. This workshop series explored the why and how of rainwater harvesting as a potential "new" supply source in southwest B.C.

Rainwater harvesting at Discovery Green in Burnaby will see a 72 per cent reduction in water consumption.

"The registration response was amazing. The Vancouver and Victoria events both had capacity crowds," states Eric Bonham. "The series resonated because we featured pioneer applications of rainwater harvesting in B.C. These local examples demonstrated that the future (of rainwater harvesting) is now."

In the years between 2002 and 2005, the cost of municipal water in Metro Vancouver rose which increased the cost-effectiveness of rainwater harvesting for industrial and greenhouse applications. For example, at the 2005 Vancouver workshop, Pacific Coast Terminals in Port Moody reported a five year payback period for their rainwater harvesting system.

What is the Situation Today?

Climate change is emerging as a driver for rainwater harvesting in the urban regions of B.C., partly because of the need to mitigate risk. In Metro Vancouver, for example, a declining snowpack means less water is available to replenish lake storage reservoirs during the high-demand summer season. The need to offset this loss provides an incentive to capture rain where it falls on roof surfaces.

New commercial buildings and/or land redevelopment to a higher density create opportunities to implement rainwater harvesting. An example is the Capital Region District (CRD) headquarters building in Victoria.

"Completed in 2006, our six storey building uses a 60,000 litre concrete cistern to capture rainwater for reuse in low flow/dual flush toilets," reports Jody Watson, CRD harbours and watersheds coordinator. "During a period of rapid growth when the regional population has doubled to 300,000 people, total annual water use has remained level. This reflects the cumulative benefits of water saving and re-use measures such as those in the CRD headquarters building."

The future is now, and rainwater harvesting is very much part of the long-term water supply picture in the Metro Vancouver and Greater Victoria regions. Projects like Discovery Green and the CRD headquarters building that reduce reliance on a regional water system will be the new norm. **CB**

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