By Alex Newman

Water Conservation,

Reducing water consumption not only saves money and is simple to do, but also keeps municipalities happy. And when local municipalities – and their sustainability checklists – are satisfied, builders can do their job better.

Bob Finnigan, COO of Heathwood Homes, explains, "Water allocation is a serious issue for municipalities, who are trying to reduce water consumption now for the future. For builders, it's not just a slam dunk – buy the land and automatically get approvals – because water isn't always so readily available."

Chris Thompson, cofounder and CTO of Greyter Water Systems, whose technology creates water-efficient buildings and homes adds, "It's not just inaccessibility of water, but challenges in delivering water from the source to the customer. York Region, for example, doesn't have direct access to Lake Ontario, forcing them to purchase from other municipalities. Water is transported to the region through pump stations, which adds greatly to the cost and creates a bottleneck."

In Richmond Hill, where Heathwood is now building 113 homes at its Forest Hill on the Green site, greywater recycling rough-ins are part of the whole package. Finnigan says, "One component the municipality looks at in allocating development permits is what you are doing with respect to water conservation. That factors into the municipality's ability to grant permits – the less consumption, the more homes they can give allocation to. It's a simple equation."

This is particularly true in York Region, he adds, where new sources of water had to be found and created because until now most water had come out of wells. So anything

A Grey Issue

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that can slow down the consumption of such a hard-to-get resource isn't only good for future generations, but also for future development.

In suburban areas where development has covered up much of the ground, water hasn't had a chance to reach below the surface into the water table. Instead, it's been running off into storm ponds – not so bad in itself except when heavy rains threaten to cause floods and overrun storm sewers and ponds. As well, especially around the Oak Ridges Moraine, municipal governments are making efforts to keep the water table up.

For Boaz Feiner, housing division president of Geranium Corporation, greywater recycling just makes "good sense." Geranium has just finished greywater rough-ins in 18 homes at its Ballantrae site, because as Feiner points out, "There is no logical reason or purpose to be flushing perfectly good drinking water down the toilet."

He is well aware of the sustainability checklist of municipalities in which his company builds, and with the recent innovations in greywater recycling he says it's so much easier to build homes that are future proofed. "This ensures a user-friendly and energy-efficient tomorrow – and adds a lot of life to your housing stock," Feiner says.

Greywater recycling has proven to be one of the highest water reducers in a home. In 2011 when Heathwood built both a green home and an ENERGY STAR home in Richmond Hill, they monitored the results, with Ryerson students analyzing the raw data. Finnigan says of all the green components in the green home – some more successful than others – the one that consistently achieved very high sustainability results was greywater recycling.

The recycling system works by taking wastewater from

showers and tubs, which consumes the most domestic water in a home. Those isolated drains are plumbed to the mechanical room and tied into the sanitary drain. When the greywater system is installed, the shower and bath water are redirected into a system that filters, stores and disinfects the greywater, which is then pumped to the toilets to use for flushing.

This year, Heathwood expects to build about 300 homes with greywater system rough-ins, Finnigan says.

The rising cost of water is another potential concern, say both builders. At the moment, most homeowners don't think about their water bill, Feiner says, because it's still so cheap. But as water costs continue to escalate, it will become top of mind.

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"We have abundant water now," Feiner says. "But we can't rest on our laurels. In many areas of the world, including some parts of North America, there's a shortage of water. Water is the next major item that needs to be dealt with. We're in the same place with water consumption now that we were with energy consumption 10 or 15 years ago. I'm not saying we've maxed our energy savings, but we in the industry have done well to track it, and have come a long way in terms of energy efficiency. But we need to start dealing with the water issue now."

Thompson says the amount of water saved is significant. When he first installed a system at home, he was "tracking between 28 and 40m^3 of water every month for five people. Partly that was so high because of a swimming pool, and also making a skating rink in the backyard. But normally it was around 24m^3. When I did greywater recycling, it went down to 9m^3 and when the municipality saw my bill, they thought the household size had dropped to one or two."

Thompson figures he has saved about 130,000 litres a year, which amounts to about four swimming pools. "We flush on average seven times a day, and if you have 6-litre toilets, that's 42 litres per person per day, the equivalent of two of those big jugs of water at the store. If you recycle the water from tubs and showers, that's how much you're saving. For the end user it's a huge cost savings. And what you save on your monthly water bill is much greater than the cost of installation."

Greywater readying is incredibly easy to install during the construction phase – a couple of extra pipes is all that's needed. And the cost is minimal – between $400 and $600. Compare that to installing after the fact, says Feiner, when it is likely to cost thousands in ripping out walls and retrofitting the right drains and pipes.

So why don't we see more residential greywater recycling systems? "There are no affordable, practical and efficient products on the market that achieve a high quality of water back to the toilets and are simple to maintain," says Chris Thompson. "Until now." While Greyter has been actively selling its commercial building greywater systems around the world, they have spent the greater part of the last three years designing and testing the Greyter HOME. According to Thompson, it has been designed to efficiently deliver a high quality of water for reuse with minimal maintenance. Furthermore, it will be priced around $2,000 and take up a small footprint within the home. The highly anticipated Greyter HOME is expected to be available on the market as early as the end of 2015. BB

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