WATERLOO REGION

If you have a flat roof, why not use it to store water?

By Leah Gerber Record Reporter
Fri., June 25, 2021 | 3 min. read

ELMIRA — Bruce Taylor says he prefers prevention over cures.

As the world grapples with climate change, Southern Ontario's municipalities face replacing storm water infrastructure to handle higher amounts of run-off from more frequent rain events.

But why not deal with some of the problems before the water hits the pavement?

"If you want to see different outcomes, you're going to have to do something different," says Taylor, president of Elmira-based Enviro-Stewards, a company that helps businesses cut waste, use resources more efficiently and tackle problems in a way that's good for business, society and the planet.

Since Enviro-Stewards' office landlord needed to replace the roof anyway, Taylor and his team took the opportunity to turn their 5,000 sq ft roof into an open storage system to retain rainwater and reduce run-off entering the stormwater system during heavy rain events.

The installation was finished earlier this month.

The roof holds two inches of water, about 23,600 litres of water when full, says Taylor.

The water is filtered and treated with UV light before it's used to flush toilets and water the company's 'living wall' that purifies the office air.

In the winter, the roof will be drained and the building will use snow melt and municipal water for its needs.

The roof can also be drained before a storm to help ease the burden on the municipal stormwater system during the event.

Any roof that meets the building code can support the water, says Taylor, as the roof's old insulation is replaced with a thinner, lighter and more effective insultation that offsets the extra weight.

Not all municipal building codes allow water to be stored on a roof. Taylor is excited that Enviro-Stewards is to be its own guinea pig and demonstrate this can work.

Taylor says installing the 'Affordable Smart Blue Roof' cost about $4000 more than the original replacement plan would have. Engineering and installation costs to connect the roof water with toilets and living wall were another $4000 dollars. Taylor estimates installing the Blue Roof system cost about two or three dollars per square foot.

Taylor estimates the roof will cut water use at his office by half, and because its much more insulating, he expects his summer cooling costs will also be reduced significantly. His team will be monitoring this going forward.

The blue roof idea is spreading. The Credit Valley Conservation Authority is installing a blue roof on its headquarters this summer. A few mall clients and a metal fabricating company are also considering the idea, says Taylor.

"The typical tendering process is to buy the lowest initial cost," says Taylor. "So the lowest initial cost is to hire somebody to install what they've always installed. Even though it's a higher life cycle cost when you consider all the energy you're going to have to use."