

## Stormwater for Greywater Use

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Given that the Eco-Machine in the Aiken Center solarium is being shut down to allow for development of the Ecological Design Studio, has anyone wondered where our Aiken toilet water has been coming from? The answer is probably no – which is okay! We're here to explain why it's important that we start asking these questions. As of now, the toilet water is coming from a potable water source. Potable water is water that is considered safe to drink. So, why do we need to use valuable drinking water to flush our toilets? We don't think we do, which is why the Stormwater for Greywater group (Audrey Seery Environmental Sciences '20 and Kayla Freischlag, Environmental Sciences '19) is proposing just that – to use stormwater to flush our toilets and urinals. This type of water is called greywater.



In addition to conserving clean drinking water in the Aiken Center, capturing stormwater via the drainage system developed for the green roof has a whole host of benefits. It utilizes water that would otherwise be running into Lake Champlain and carrying with it all types of urban pollutants. If we use greywater from the Aiken roof we will reduce water utility costs, create opportunity for stormwater retention credits, and uphold sustainability and environmental stewardship values. It would inspire other programs and schools to follow in our environmentally conscious footsteps. Because the Aiken Center already has an existing graywater piping system leading to all the toilets and urinals, a graywater tank, and an elaborate filtering system including an ultra-violet light system, the Aiken Center is nearly ready to accept stormwater for graywater use.

The first step in this process is to assess the amount of water that we need to flush all the toilets in Aiken and how much rainwater is available year-round. We are able to estimate the water that is being used to flush the toilets by counting the number of toilets and urinals in the building. Since the Aiken Center is a LEED platinum-certified building, the data is available to make this approximation. It is also important to consider how much water we would be able to capture as greywater. From the work of faculty and students prior to our initiative, there is a green roof system on the top of Aiken. There are tipping buckets that have data telling us how much water has flowed over the roof in the past. The results of these calculations will tell us if it is feasible to install a stormwater as greywater system.

We are in the first stages of this process, and the outlook is positive. Just this past week, Dean Nancy Mathews approved a budget to receive a project estimate from a licensed engineer to complete this project. This estimate details the cost of hooking up the Aiken Center's existing green roof stormwater collection system to deliver greywater that can be used to flush toilets and urinals. Once this estimate is complete, we will be able to proceed with project planning and hopefully the implementation of the only stormwater to graywater system at UVM.