



Portland, Oregon receives between 20 and 70 inches of precipitation per year. The White Stag Block has a water catchment system that will take advantage of this plentiful resource, while at the same time reducing the Block's demand for municipal water. To complement the water catchment system, there are water-efficient low-flow toilets and urinals throughout the buildings. These systems and components are part of the White Stag Block's Leadership in Energy and Environmental Design (LEED™) Water Efficiency "Water Use Reduction" (WEc3.1 & 3.2) and "Innovative Wastewater Technologies" (WEc2), as well as Innovation & Design "Exemplary Performance of WEc3 (40% water use reduction)" (IDc1.1) credits, based on these systems.

The water catchment system collects rainwater from the roofs of the White Stag, Skidmore, and Bickel buildings. The roof drains collecting the water are either downspouts (on the edge of the buildings) or inboard on the rooftops. Pipes carrying the filtered rainwater are made of clearly-marked, bright green, recyclable polypropylene. These pipes are not only less expensive than copper pipes, but are also the first of their kind in Portland. The pipes carrying water from the roofs to the basement are visible from the first floor main lightwell, shared by the Skidmore and White Stag buildings.

After being collected and filtered, the water is routed to an 10,000 gallon stormwater retention tank that is located in the basement, beneath the main lightwell. During renovation, the open-air, dirt-filled, basement-level lightwell was cleared of bottles and other debris, lined with concrete, and converted into this water retention tank. The tank is easy to identify, as it is located beneath the two tamper-proof manholes in the main lightwell, adorned with the University of Oregon's signature "O". Water from the main storage tank is piped to an ultraviolet (UV) filter in the basement, and then pumped from to a smaller, plastic, secondary holding tank. From there,

it is piped to the toilets.

Sensor systems in the main tank detect the water level. If the in-tank monitoring system indicates that the water level is getting low, the tank can be supplemented with Portland municipal drinking water. The tank also has overflow capabilities, so that collected rainwater exceeding its capacity can be drained. As required by the City of Portland Bureau of Environmental Services, excess water is filtered by both UV and mechanical filters before being drained into Portland's municipal stormwater system.

The collected rainwater feeds low-flow toilet fixtures that reduce water use. There are urinals that require only 1/8 gallon (1 pint) to flush. There are also dual-flush toilets that allow users to choose a half flush or a full flush based on waste. The water flowing through this rainwater system is not potable.

The rainwater catchment system combined with the low-flow fixtures are expected to meet the White Stag Block's entire winter flushing demand, as nearly 2/3 of Oregon's total annual rainfall occurs between October and March. While Oregon summer rainfall is minimal, the building's need for flushing will be much lower. Fewer students will reduce summer water requirements to significantly less than those in winter.

~ Diana Fischetti, Ashley Garrett, & Jolyn Overton

Photos: Ray Neff

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