



# Green Infrastructure & Stormwater Management CASE STUDY

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## Spokane Community College, Jenkins Wellness Center

**Location:** Spokane, WA

**Client:** Spokane Community College

**Design Firm(s):** Gavin Associates Landscape Architecture, LLC

**Landscape architect/Project contact:** Tim Gavin, Landscape Architect

**Email:** [tggavinassoc@comcast.net](mailto:tggavinassoc@comcast.net)

**ASLA Chapter:** None

### Project Specifications

**Project Description:** The EPIC system works by harvesting runoff from snow and rainfall from roof tops and adjacent paved surfaces. Once the runoff is accumulated within the EPIC container it acts as an irrigation system for the landscape plantings. The EPIC containers are filled with a clean sand that wicks the moisture from the bottom of the containers to the surface by capillary rise and keeps the entire 16' to 24" sand section moist. Once the moisture reaches the surface it evaporates. The EPIC system has no moving parts. When the runoff moisture is evaporated then supplemented water is added from an alternative supply and in this case it is from a city domestic meter. The system is controlled by moisture sensors that tell the controller when the system needs to be charged with water which allows the soils to dry out prior to new water being added thus saving more domestic water from being supplied.

### Project Type:

Institutional/education

Part of a redevelopment project

**Design features:** Bioretention facility, rain garden, bioswale, cistern, rain barrels, and downspout removal. Rather than releasing dirty stormwater to an offsite location through piping or surface flows, we captured runoff on site, cleaned it through the sand filtration layering and used it to water the landscape. The system can hold up to 2.5" of water before it will spill over to a drywell but the spilled water will have been cleaned prior.

**This project was designed to meet the following specific requirements or mandates:**

State statute, LEED Silver minimum. This project received 'Gold'.

**Impervious area managed:** 5,000 sq/ft to 1 acre

**Amount of existing green space/open space conserved or preserved for managing stormwater on site:** 5,000 sq/ft to 1 acre. The campus was impressed by earlier exposure to the EPIC system and wanted to be the first to have it on their campus. We calculated the annual runoff from the roof as well as from the adjacent pavements and found we could hold all runoff within the 5,000 sq/ft grass area and would only need to supplement a small amount to keep the grass area thriving.

**The regulatory environment and regulator was** supportive of the project.

**Did the client request that other factors be considered, such as energy savings, usable green space, or property value enhancements?** The client was interested in saving water but the main issue was to showcase this new technology and test it for future use in on campus and our community.

## Cost & Jobs Analysis

**Estimated Cost of Stormwater Project:** \$10,000-\$50,000 (Public funding: State)

**Was a green vs. grey cost analysis performed?** No, there was only one cost analysed and that was could it fit in the budget.

**Cost impact of conserving green/open space to the overall costs of the site design/development project:** The landscape master plan was able to keep a larger grass area for student open-play use rather than converting to low water use shrub beds that would not be accessible for recreation.

**Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)?** Significantly increased. Being that the EPIC system has no moving parts, for irrigation purposes, the landscape maintenance staffs irrigation repair time is completely deleted for this area. Care of grass is still required except that fertilization of the grass area can be applied through the EPIC system and the grasses will gain 100% of the nutrients rather than the traditional methods.

**Number of jobs created:** One time installation...Not applicable

**Job hours devoted to project:**

Planning and Design: 4 hours

Construction: 370 hours

Annual Maintenance: 0 hours

## Performance Measures

### Stormwater reduction performance analysis:

13% of stormwater was retained on site from the building redevelopment. More than that from the site but not calculated.

**Community & economic benefits that have resulted from the project:** Maintenance benefits with a non-pressurized system; no broken sprinkler heads or drip lines, maintenance can focus on the nutrient needs of the plant and mowing the lawn instead. Install components warranted by manufacturer for 20 years (Firestone), EPIC system can be easily added to in the future, multiple landscape plants are feasible if desired (if they want to add a flower bed, etc.), BMP & LID with passive, low flow, simple technology taking advantage of pre-existing capillary & filtration physics of sand that already exist in nature. Like biology, EPIC is a celled system that operates at nature's pace as the "technological advance" compared to tedious timers, satellite imaging, and data collection attempting to collect a best guess for what the plant needs... EPIC allows the plant to decide what water requirement is best.

## Project Recognition

GOLD' certification for this project and an 'Inovative Desgin' point for the EPIC system.

## Additional Information

Links to images: [www.resolutions.com](http://www.resolutions.com)