



# Green Infrastructure & Stormwater Management CASE STUDY

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## First Unitarian Society Building Addition

**Location:** Madison, WI

**Client:** Kubala Washatko Architects

**Design Firm(s):** Ken Saiki Design

**Landscape architect/Project contact:** Steve Whayland, PE, LEED AP

**Email:** [SWhayland@ksd-la.com](mailto:SWhayland@ksd-la.com)

**ASLA Chapter:** Wisconsin

### Project Specifications

**Project Description:** The addition to Madison's First Unitarian Society Meeting House received a LEED gold rating by the United States Green Building Council in 2008 for its numerous sustainably innovative features. Ken Saiki Design worked closely with the building architects and progressive congregation to design a fully integrated stormwater management-landscape system that includes green roofs, an underground stormwater storage and infiltration device, rain gardens and native plantings.

**Project Type:**

Institutional/education

A retrofit of an existing property

**Design features:** Rain garden, green roof, underground storage, and infiltration via "storm tech" rigid plastic chambers and gravel basin.

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

County ordinance, local ordinance, Dane County stormwater management and erosion control ordinance more stringent than WI-DNR & EPA requirements

**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:** less than 5,000 sq/ft

**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?** Yes, the congregation was seeking LEED certification on the building addition which considered many design aspects including energy savings, sustainable landscape design, water efficiency, community connectivity, etc.

## Cost & Jobs Analysis

**Estimated Cost of Stormwater Project:** \$100,000-\$500,000 (Public funding: All privately funded through congregation)

**Related Information:** 40% Labor, 60% Materials/Equipment

**Was a green vs. grey cost analysis performed?** No

**Cost impact of conserving green/open space to the overall costs of the site design/development project:** Reduced overall costs see below

**Cost impact of conserving green/open space for stormwater management over traditional site design/site development approaches (grey infrastructure)?** Significantly reduced costs (10% or greater savings). The combination of a three stage stormwater management system via a green roof, rain gardens, and underground storage saved space on a tight project site, meet local code and improved overall landscape aesthetics. Would have had to purchase additional land to meet stormwater management and parking criteria had we not pursued this three stage system.

**Number of jobs created:** approx. 100 Architecture, Engineering, Construction jobs created

**Job hours devoted to project:**

Planning and Design: 300 for stormwater/landscape portion

Construction: 80 for stormwater/landscape portion

Annual Maintenance: 20

## Performance Measures

**Stormwater reduction performance analysis:**

The combination of green roof, rain gardens, and the underground storage has capacity to filter and infiltrate the first 1/2 inch from the average annual rainfall event. Provided peak detention control for 2-year storm event to the pre-development condition.

**Community & economic benefits that have resulted from the project:** Increased the property value by improving landscape aesthetic, reducing on-site parking (an agreement was made with neighboring doctor's office for parking demand during peak hours) helped strengthen community connectivity. A visitor and tourist destination as a Frank Lloyd Wright designed

building, historic landmark and now as a LEED Gold certified building.

### **Additional Information**

**Links to images:** <http://www.fusmadison.org/green>,  
<http://aiatopen.org/hpb/overview.cfm?ProjectID=1964>