

Infiltrating Stormwater & Sequestering Carbon Lessons Learned from the Kansas State University Stormwater Management Project

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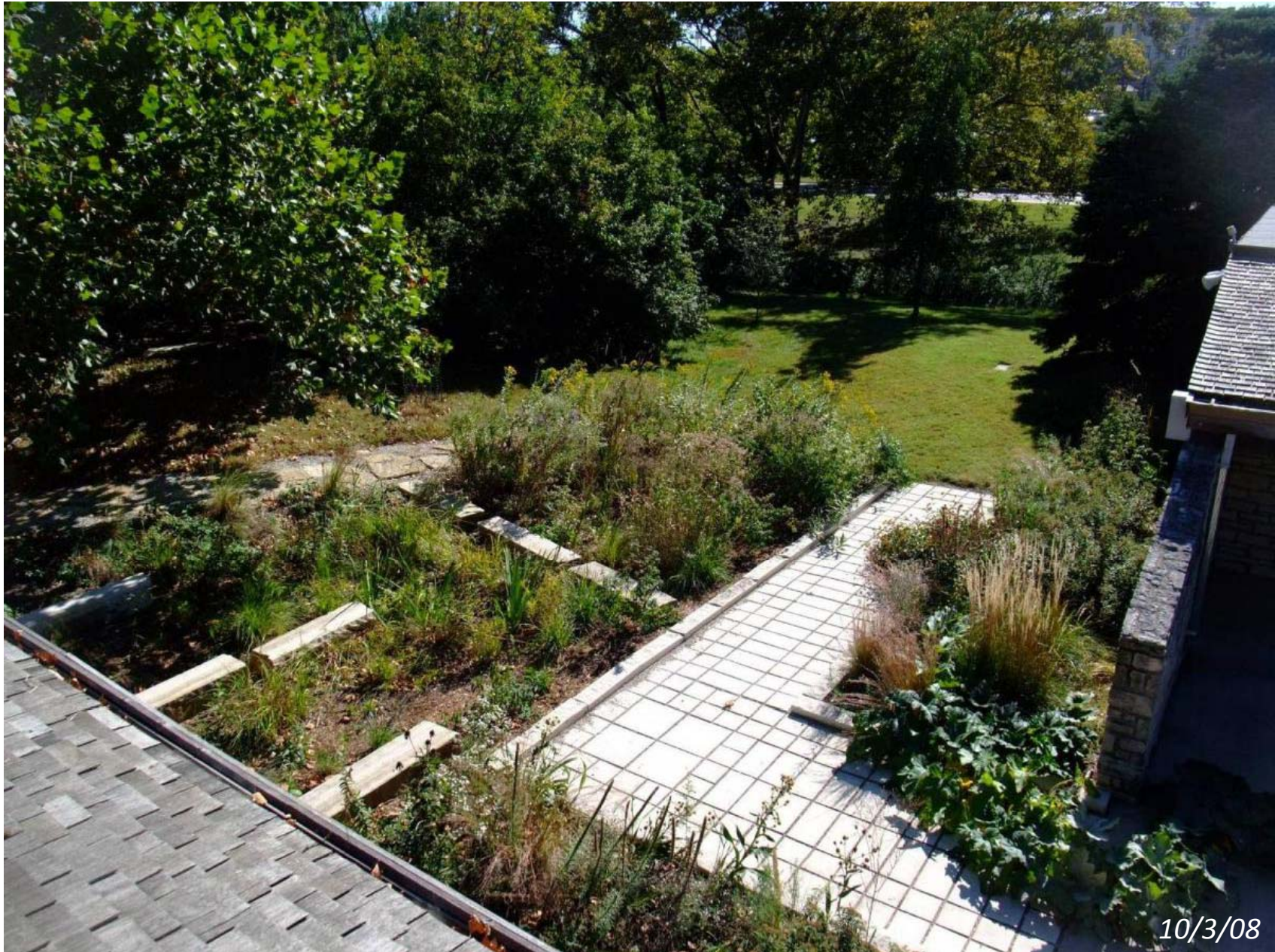
*Konza Prairie near Manhattan, KS
Flint Hills Ecoregion*



*Sunset Zoo Rain-Gardens
Manhattan, KS*

Interweaving Art and Science

K-State's International Student Center Rain-Garden



Interweaving Art and Science

K-State's International Student Center Rain-Garden



Rossville, Kansas Rain-Garden

Working with Prof. Skabelund, Brett Tagtmeyer & Aarthi Padmanabahn (LAR) designed and helped residents lay out the Rossville Rain-Garden in Spring 2008. Implementation & maintenance by volunteers from the local community.



Sunset Zoo Rain-Gardens – Manhattan, KS



Within one good growing season small, live native species can take hold – on the ground, and on a roof...

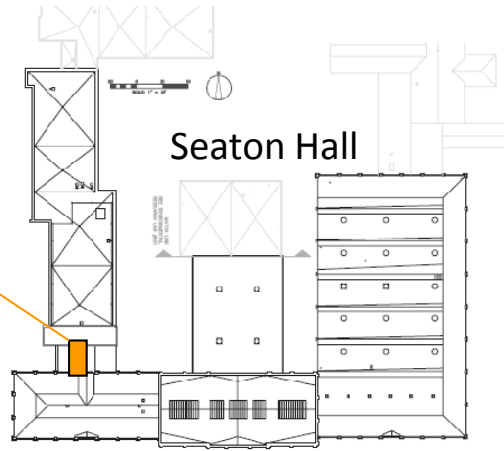
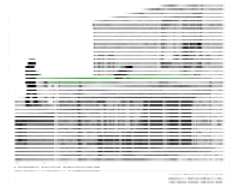
Seaton Hall Green Roof– Manhattan, KS



10/10/09



KSU Seaton Hall Green Roof



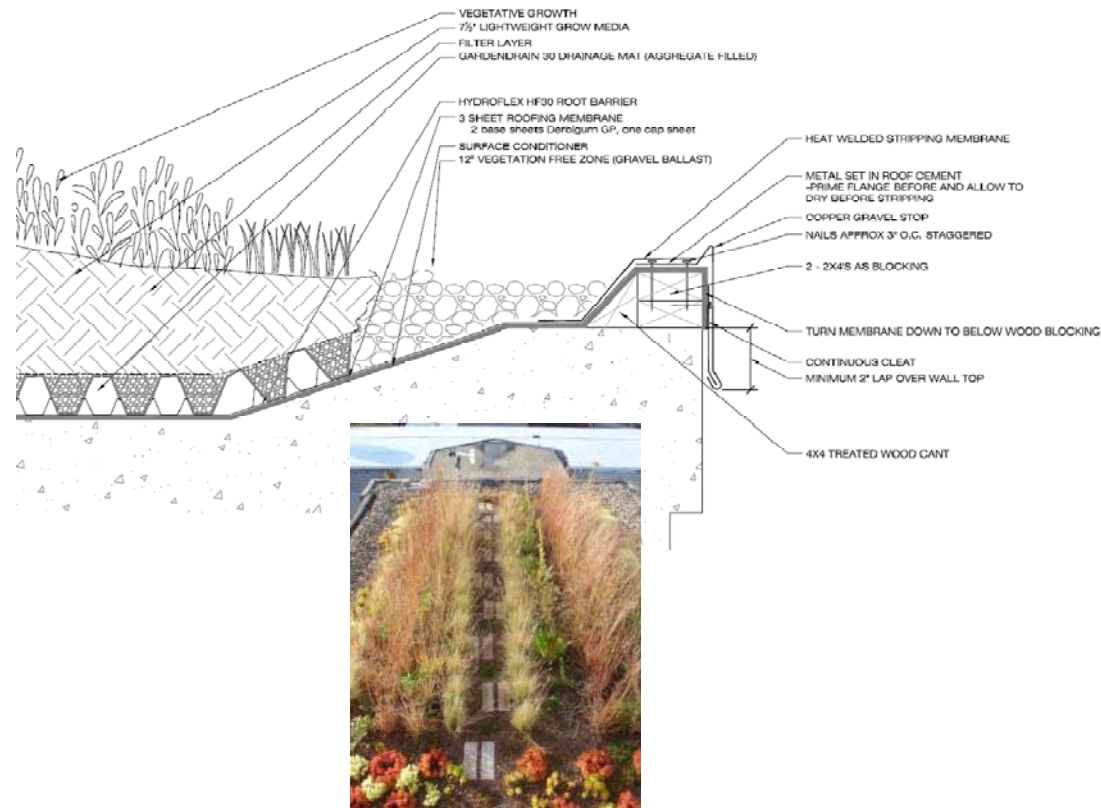
Upper breezeway roof – 300 sq ft;
can hold ~64 lbs/sq ft

Seaton Green Roof - exposed upper rooftop

Structural calculations by Jessica Wiles & Dr. Sutton Stephens (Arch. Engineering). Details by Michael Knapp & Mark Neibling, with guidance from professors Todd Gabbard, Lee Skabelund, KSU Facilities, Greg Pfau (BNIM), and others. Monitoring support from Stacy Hutchinson (BAE), Mary Knapp & Carol Blocksome (Agronomy), and Rhonda Janke (Hort). Materials and labor donated by KSU-Facilities, Derbigum, Danker Roofing & American Hydrotech.



9/24/09



KSU ISC Rain-Garden

Results: participants and visitors clearly recognize the role of water in sustaining ecosystems—and hopefully consider ways they can harness rainwater for irrigation & ecological renewal where they live... *They also recognize that ongoing maintenance (as with any landscape) is essential and takes time & thought.*

Primary Maintenance Issues:

Who maintains (weeds & clips) this living, dynamic system?

How much time does it take; how often?

Is irrigation needed? How often is mulch applied?

What invasive or nuisance species pose challenges?

Will soils, rain-bowls & permeable paving clog?

How do design, maintenance & aesthetics interrelate?

How do costs compare to other kinds of landscape maintenance?



Note the water still in the rain-gutter, well after water soaked into heavy clay rain-garden soils

