Zenger Farm

A complete green overhaul of an existing farmhouse and site improvements in the flood-prone Johnson Creek Watershed. The site features an on-site, expandable rainwater harvesting system that provides water to all facilities in the "park." The farmhouse has been renovated using mostly recycled, salvaged and certified materials and is designed to be a zero net energy user.

Project Highlights

- **Photovoltaic system**
- **Energy efficient design**
- **Rainwater harvesting system**
- **Bioswales**
- **Permeable pavers**

Portfolio Contents

Final Report

Project Website (External Link)

City of Portland Green Investment Fund

Grantee Final Report

PROJECT INFORMATION

Name of Primary Contact:	Beth M. Gentry				
Company or Organization:	Friends of Zenger Farm				
Address:	11741 SE Foster Road				
City, State & Zip:	Portland, Oregon 97266				
Phone:	503-282-4245	Fax:	None	E-mail:	beth@zengerfarm.org

PROJECT DETAILS

Project Name:	Zenger Urban Agricultural Park
Project Owner:	Friends of Zenger Farm/City or Portland, Bureau of Environmental Services
Project Address:	11741 SE Foster Road
City, State, ZIP:	Portland, Oregon 97266
Date Project Started:	September 2004
Date of Completion:	September 2007
Building Certifications:	

Design and Construction Team

Architect or Designer:	Erez Russo, Architect / David Evans and Associates, Inc., Engineering/Site Dev Design
General Contractor:	Barrs and Genauer Construction / Meteor Construction
Landscape Architect:	PIVOT Landscape / Lando and Assoc. Landscape Design
Structural Engineer:	
Civil Engineer:	
Mechanical Engineer:	
Electrical Engineer:	
Interior Designer:	None
Green Building Consultant:	Charlie Stephens
Energy Modeler:	
LEED Consultant:	
Additional:	

Building Details

If building has mixed use, please include the sq. ft of each type of use

Gross Floor Area: 1725 SF

Building Type

☐ Single-family Residential
☐ Multi-family Residential
☐ Commercial
☐ Industrial
☐ Institutional
X Mixed-Use
☐ Other (describe)

Site Conditions (check all that apply)

☐ Previously Undeveloped Land
☐ Previously Developed Land

☐ Brownfield Site
X Preexisting Structure(s)

Project Type
X Renovation
☐ New Construction
☐ Addition

Project Costs

Land Acquisition:	No costs associated
Site Clearing/Deconstruction:	Costs are included in Site Development ($2,000 donated for Asbestos and Lead Abatement labor by IRC Abatement Technologies
Site Development:	$113,918 (15,000 donated from David Evans & Associates)
Public Improvements:	
Design Fees:	$44,928
Permits:	$17,092
System Development Charges:	
Construction:	$297,693
Green Technologies:	
Other Costs:Project Management, Consultant Fee,	$77,712
Total:	$551,343 (Does not include cost of donated materials and services)

Project Measure Matrix

In the following Matrix, as requested, please provide detailed information about all green products and materials identified in the Grant Agreement, Green Building Practices and Features.

Green Building Project Measure Matrix

Product/ brand or Measure by Category	Model #	Vendor	Cost				Efficiency/ Equipment Ratings or Capacity	Certifications	Incentives, Credits, rebates, grants, etc…
			Design	Material	Equipment	Labor			
Energy									
Wall Insulation							U= 0.052		
Ceiling Insulation							U= 0.044		
FG Frame Low-e Windows		Milgard		AVG. $25 per square feet (244 sq ft needed) $6100			U= 0.34	NFRC	
York HP	YZB036	Ecoheat		$16,740 (installed cost of entire system, design installation)			HSPF 8.5+, EER 11.5+	ARI	
Aqua Products Chiller	SCHP-036-S2S	Ecoheat		See above			See heat pump ratings		
Energy Efficiency Continued									
Nutech Lifebreath Air Handler	CAF-U-L4A-36-E16	Ecoheat		See above					With Built in HRV
E-Tech HPWH	R060	Constellation Labs			$1375		COP 3.3, 5,900 Btu/hr		To be acquired in 2008

3-14” Solatubes		Solatube		$1800					$1800
Dishwasher		Bosch		$1100			259kWh/year		
Refrigerator		Amana		$990			459 kWh/year		
Wind Directional Caps	14” caps	FAMCO			$431.12				$431.12
PV System	6660W Solar Photovoltaic System	Environmental Building Supply		$52,250 (materials and labor)					$52.250
Water Efficiency									
Cisterns	903LSTP	SCAFCO			$11,943	$18,000	2 4,800 gallon tanks		$4586.20
Caroma dual flush toilets (bowls, tanks, seats and sinks)		Caroma USA		$798.32					$798.32
Filtration System	Rain Washer Rain Harvesting Appliance	Concentric Innovations		$5414.75					
Stormwater Management									
Swales (vegetation)		Bosky Dell		$1100	$8000 (planting)	$545 (Check dam labor for swales)			$1100
Permeable Pavers (pavers, installation and gravel filter)				$18,148 (labor and materials)					
Construction and Demolition Waste Recycling									

PROJECT HIGHLIGHTS

Financial Savings & Benefits

Can any soft or hard cost savings be identified from installation of green measures? Please provide actual cost savings.	We are currently tracking energy use of the farmhouse for hard savings of the energy efficient measures. In September 2008, FZF will submit first year findings for an accurate cost savings. The water catchment system is currently being finished. The cisterns are currently collecting water, however the system is not yet ready to filter and use the water for potable water in the house.
Can any operational cost savings from green measures be identified? Please provide actual or projected operational cost savings.	

Environmental Benefits

Please be as specific as possible. Compare against code or a similar conventional building as relevant.

Modeled Energy Savings: *(Annual kWh or therms per sq foot)*	4.34 kWh per sq foot
Estimated Annual Water Savings: *(Annual savings in gallons per person)*	Unknown at this time
Construction and Demolition Waste Recycling: *(% recycled by weight or volume of total waste)*	75% of volume as reported by general contractor
Estimated Annual Reduced Stormwater Runoff: *(% total permeable surface area of total site area)*	Approximately 20% of the driveway site development is permeable pavers
Enhanced Habitat: *(% area of restored or new habitat of total site area)*	Unknown at this time
Other:	Swales

Community Benefits

Can any specific community benefits be identified? Examples include educational opportunities, public access or community benefit programs.	The public will benefit from this project through educational opportunities regarding green building practices, stormwater management ideas and energy efficiencies. Furthermore, with public space available, FZF will be able to host groups on sight for added community benefits.

LESSONS LEARNED

Describe key outcomes from this project. How has the project changed from its original scope and why? Would you recommend the green technology or practice to other projects? Were there any policy, zoning or building code related issues that affected the project?	Please see attached project update. I would recommend the technology to others. Especially the stormwater management components and the green building components on the house such as the solar panels, water catchment systems and upgrades for insulation and windows. The only building code issue that we came across was with the Portland Water Bureau and BDS for the water catchment systems. We had to go through an extensive appeal process for the filtration system to be approved for our potable water. Also, with our current system of backflow protection at the water catchment site, which is approved under the plumbing specifications for a final permit, it does not meet the Portland Water Bureau's requirements. We just currently learned that we need to add another backflow protection device at the initial point of city water contact at the main line located near the sidewalk. This work is currently under review and getting cost estimates.

IMAGES AND GRAPHICS

Questions? Please contact Kyle Diesner, 503-823-4166 at OSD. Thank you for taking the time to share what you've learned!