

Cincinnati 3E Summit

September 7, 2011

Saving Water - Breakout II

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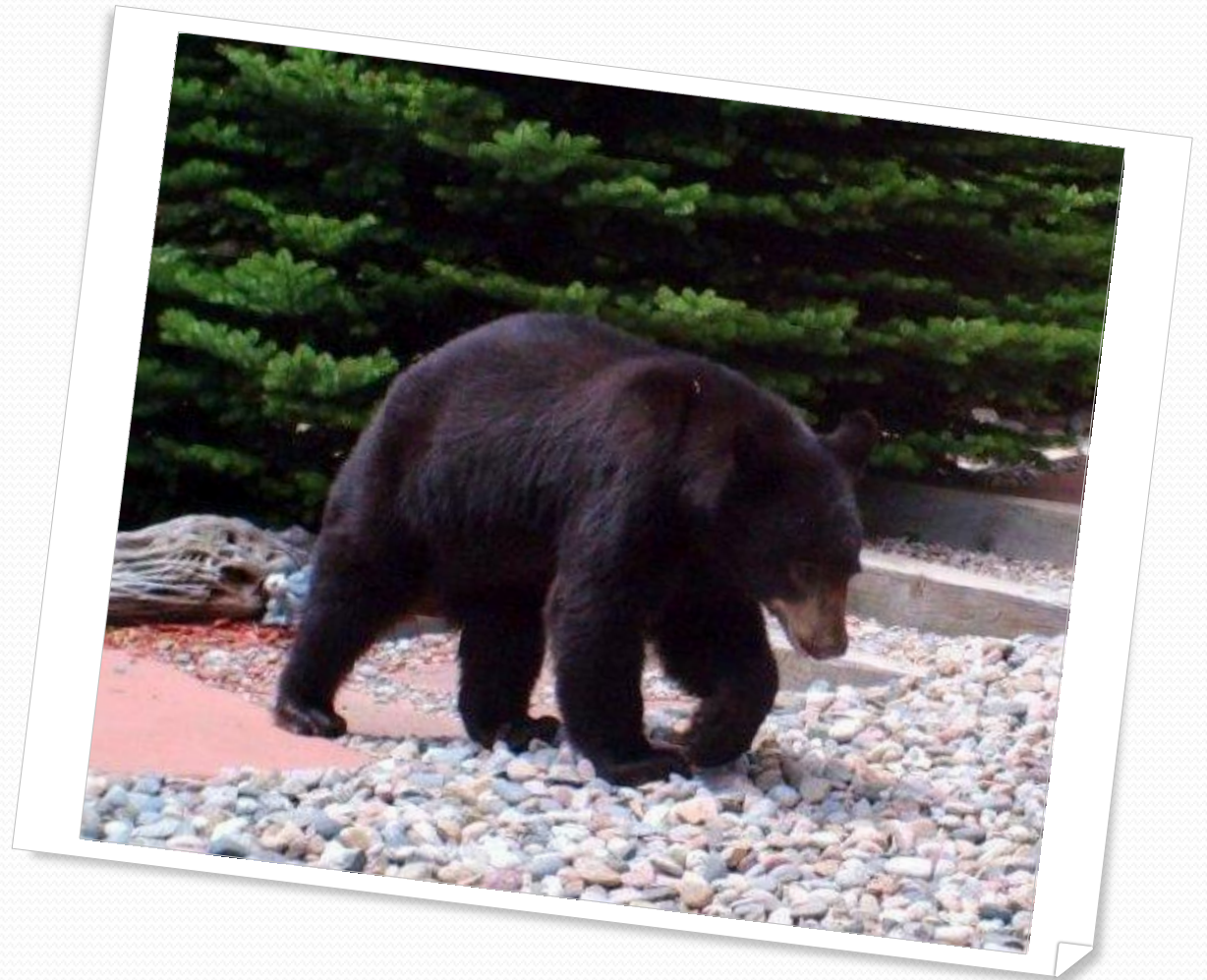
Emersion Design

Rain Water Reuse

- Water Outside the Building (rain barrels)
- Water Inside the Building (toilet flushing)

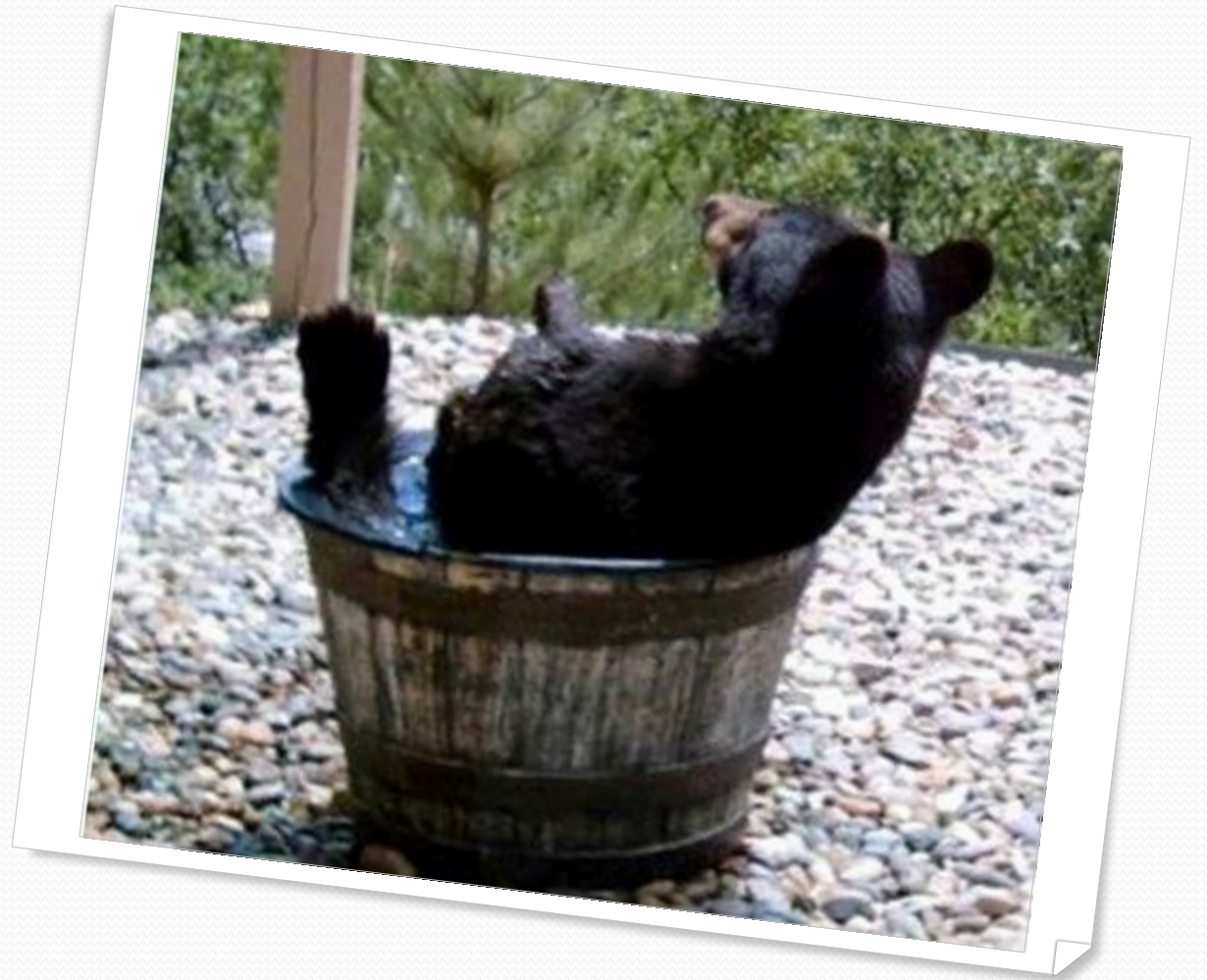
Rain Water outside

Rain Barrels & Cisterns









Rain barrels

- In Cincinnati....
 - Existing system?
 - New Building?
 - Design requirements?
 - Questions: City of Cincinnati
 - Department of Building's and Inspections: (513) 352-3267
 - Reference: Cincinnati Municipal Code Chapter 1105
 - <http://search.municode.com/html/19996/index.html>

Rain barrels are not cisterns

- Underground structures
- Require special consideration and approval
- Structural concerns
- Water discharge and leakage verification
- Contact: City of Cincinnati

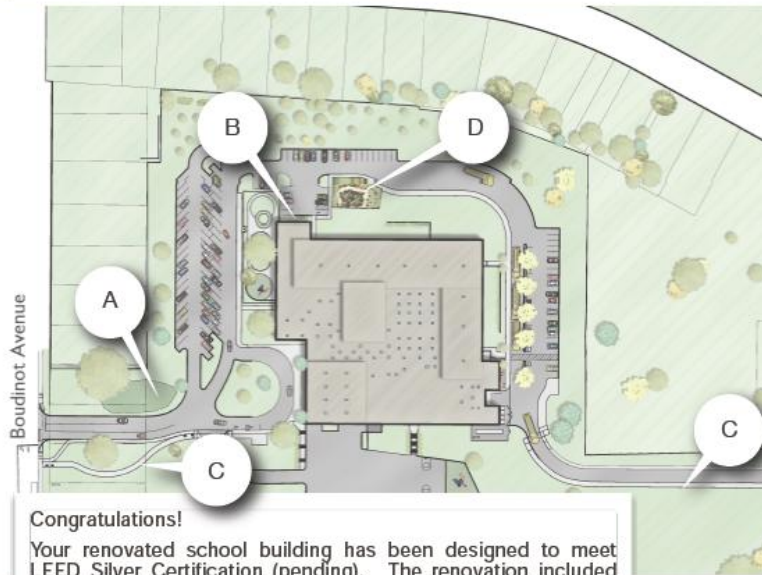
Department of Building's and Inspections
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Rain Water inside

Non Potable Use (flushing toilets)

Cincinnati's vision for using rain water inside a building....

Dater Montessori School



SITE

The site has been designed to include transportation via bus and bikes, low-emitting and fuel efficient vehicle parking spaces, dark-sky compliant light fixtures and of course, space for the "Meadow Maze", water efficient landscaping.



A

Storm water detention swale for controlling storm water runoff and to reduce storm water sent to rivers and streams.



B

Rain barrels hold rainwater collected from the roof. Use rainwater instead of city water to water your gardens!



D

Constructed in 1966 your renovated school has been rebuilt with sustainable, green features!



C

Bikers can now use bike lanes and bike racks. More bikers means less car and bus pollution.

Congratulations!

Your renovated school building has been designed to meet LEED Silver Certification (pending). The renovation included adding wall and ceiling insulation, completely new mechanical, electrical, plumbing and control systems to provide state of the art energy efficiency.



Cincinnati's vision....

- Build Greener Buildings



WE Credit 3.1: Water Use Reduction: 20% Reduction 1 Point

Intent

Use high-efficiency fixtures, dry fixtures such as composting toilet systems and non-water using urinals, and occupant sensors to reduce the potable water demand. Consider reuse of stormwater and greywater for non-potable applications such as toilet and urinal flushing and custodial uses.

(not including irrigation) after meeting the Energy Policy Act of 1992 fixture performance requirements. Calculations are based on estimated occupant usage and shall include only the following fixtures (as applicable to the building): water closets, urinals, lavatory faucets, showers and kitchen sinks.

Potential Technologies & Strategies

Use high-efficiency fixtures, dry fixtures such as composting toilet systems and non-water using urinals, and occupant sensors to reduce the potable water demand. Consider reuse of stormwater and greywater for non-potable applications such as toilet and urinal flushing and custodial uses.



Cincinnati's vision....

- Lower water costs for buildings.

Table 2. Typical Daily Water Use for Office Buildings and Hotels.⁴

Use	Office Buildings % of Daily Total	Hotels % of Daily Total
Potable indoor uses		
Showers	---	27%
• Faucets	1%	1%
• Kitchen	3%	10%
• Other uses	10%	19%
Subtotal	14%	57%
Non-potable indoor uses		
• Toilets/urinals	25%	9%
• Laundry	---	14%
• Cooling	23%	10%
Subtotal	48%	33%
Outdoor uses	38%	10%

So, what's the problem?

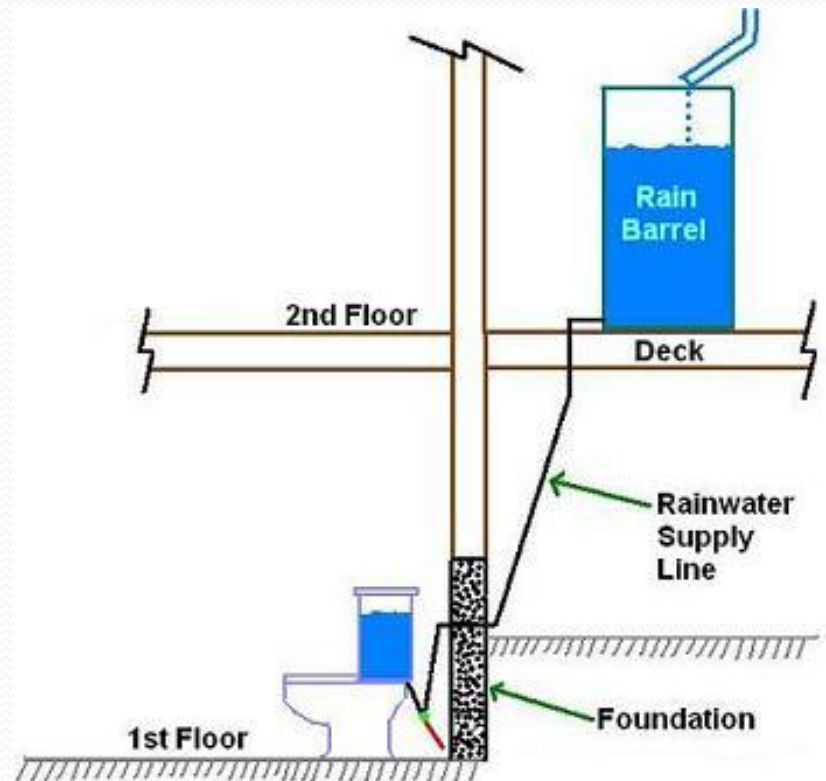
The need for:

Building standards

Inspections

Protect your health

Protect the public water supply

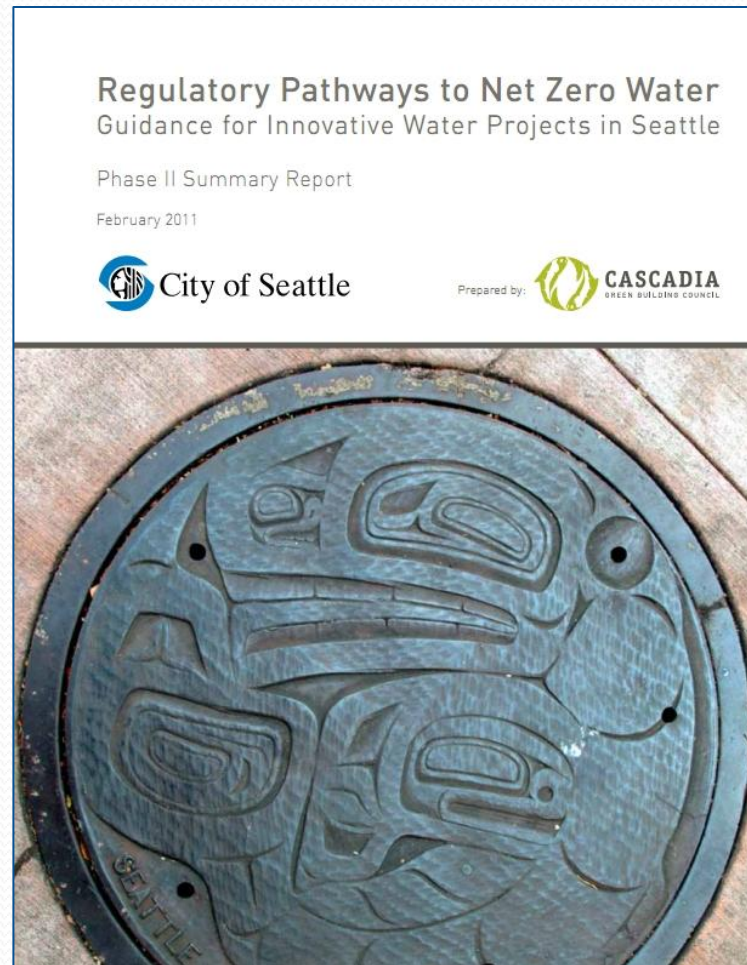


Who's doing this?

Seattle plan to achieve
New Zero Water usage

Started as an City
Ordinance in 2009...

Published in February
2011



*** INTEGRATED DESIGN ***

NET ZERO WATER

SCHEMATIC FLOW DIAGRAM

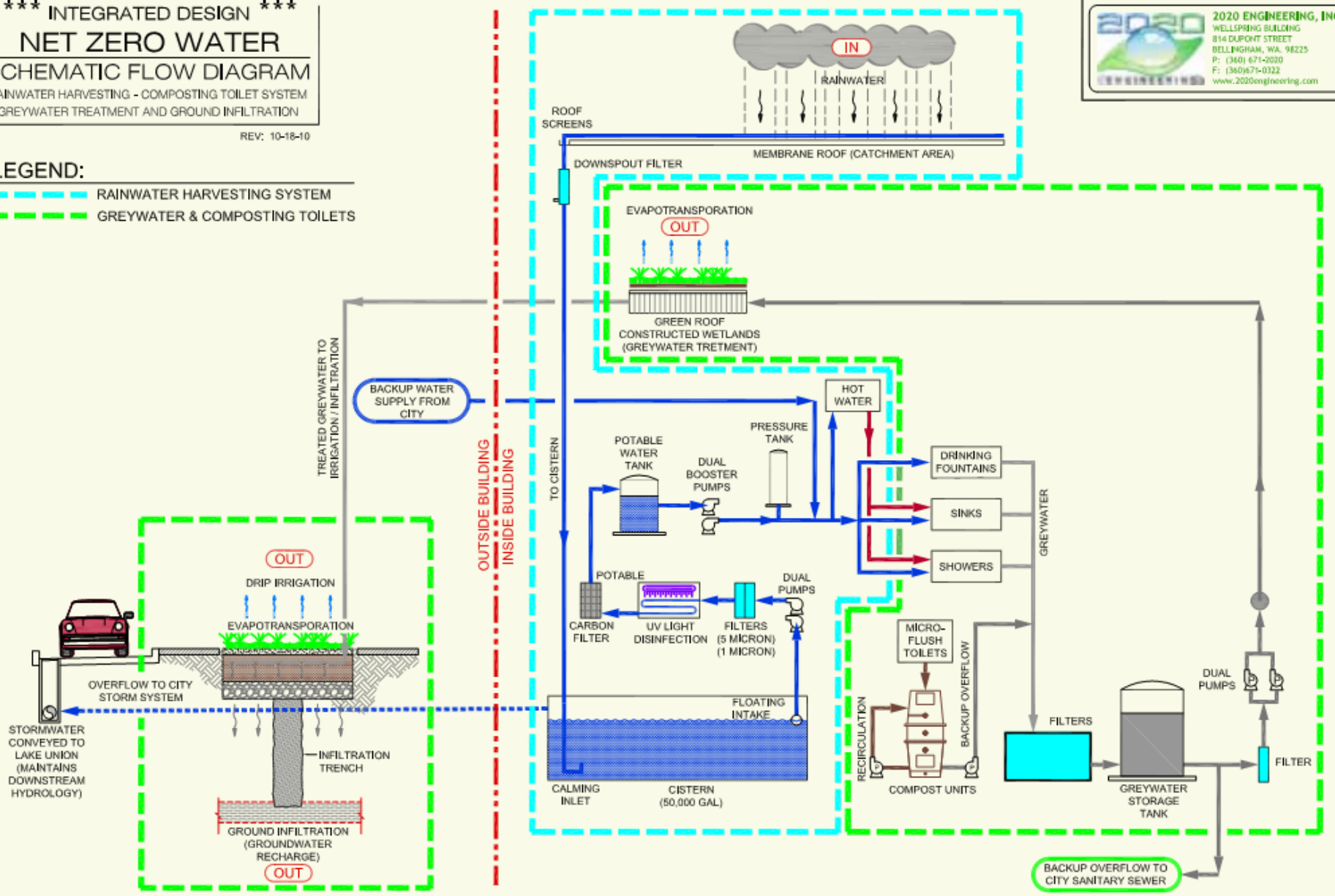
RAINWATER HARVESTING - COMPOSTING TOILET SYSTEM
GREYWATER TREATMENT AND GROUND INFILTRATION

REV: 10-18-10

LEGEND:

- RAINWATER HARVESTING SYSTEM
- GREYWATER & COMPOSTING TOILETS

2020 ENGINEERING, INC.
WELLSPRING BUILDING
814 CLIPPOUT STREET
BELLINGHAM, WA 98225
P: (360) 671-2030
F: (360)671-0322
www.2020engineering.com



Cascadia Center Net Zero Water Schematic Flow Diagram/ Courtesy of 2020 ENGINEERING

What is our community doing?

Formed Task Force to evaluate existing codes and ordinances

Supported by the Greater Cincinnati Foundation

37 Members representing 18 Departments & Agencies

Began in June 2011

1st report Fall 2011, recommendations Spring 2012



the green partnership
FOR GREATER CINCINNATI

Rain Water Harvesting Task Force
Version: 7/12/2012

Background

In the fall of 2009, the GPGC Steering Committee discussed potential projects that could be undertaken during 2010. One such project is rain water harvesting. Most of the Partners have attempted to implement rainwater capturing and reuse for non-potable applications. These attempts were not successful due to impediments within the existing regulatory process. It was concluded that members of the Steering Committee should investigate the viability of the GPGC undertaking a leadership position on this subject during 2010.

During 2010, multiple meetings have occurred with a variety of organizations both within the GPGC Partner organizations and with other organizations that have valuable knowledge on the subject.

At the October, 2010 GPGC Steering Committee Meeting, it was agreed to form a GPGC Task Force regarding rain water harvesting and reuse for non-potable applications. It was also agreed to have the Task Force focus on a specific project to achieve definable outcomes quicker. One of the Partners, Cincinnati Public Schools, requested assistance of the GPGC regarding a rain water system at Dater Montessori. It was discussed and agreed that this opportunity provided an ideal Project for the Task Force.

It was concluded in later Steering Committee Meetings that this project would receive proper attention if the Project Team could be professionally facilitated and include a consultant who could bring national best practices for consideration. A grant request was submitted to the Greater Cincinnati Foundation to underwrite the meeting facilitation and consultations for the GPGC, and a grant was awarded by the GCF to the GPGC received in April, 2011.

Task Force Project

The Project is to connect an existing rain water harvesting and reuse system at Cincinnati Public Schools' Dater Montessori School. This system has been constructed yet is neither connected to the plumbing systems nor is it operational. This Project provides a specific, focused, tangible, and definable opportunity for the Task Force. Should the Task Force be successful in developing an acceptable process by which this system can be connected and used, there will be direct benefits for most every Partner of the GPGC. Also, it is likely that an additional result of this Project will be developing a successful regulatory process such that other, similar systems can be constructed in the future.

THE GREEN PARTNERSHIP FOR GREATER CINCINNATI | PO Box 20093, Cincinnati, OH 45220 | green@ucmail.uc.edu

Progress to date...

- Review Dater's design against latest standards
- Discussion with State Agencies
- Health Department support
- GCWW is actively engaged in protecting the public water and applying national best practices

So, stay tuned!

We'll get there,
and make
everyone
comfortable
along the way

