

Rainwater Harvesting Challenges

(design perspective)

June 25, 2013

Challenges

Owner/client

Education

Weighing of benefits

Costs (time and money)

Type of owner

Project goals



Challenges

Owner/client/A&E

Education (start simple)



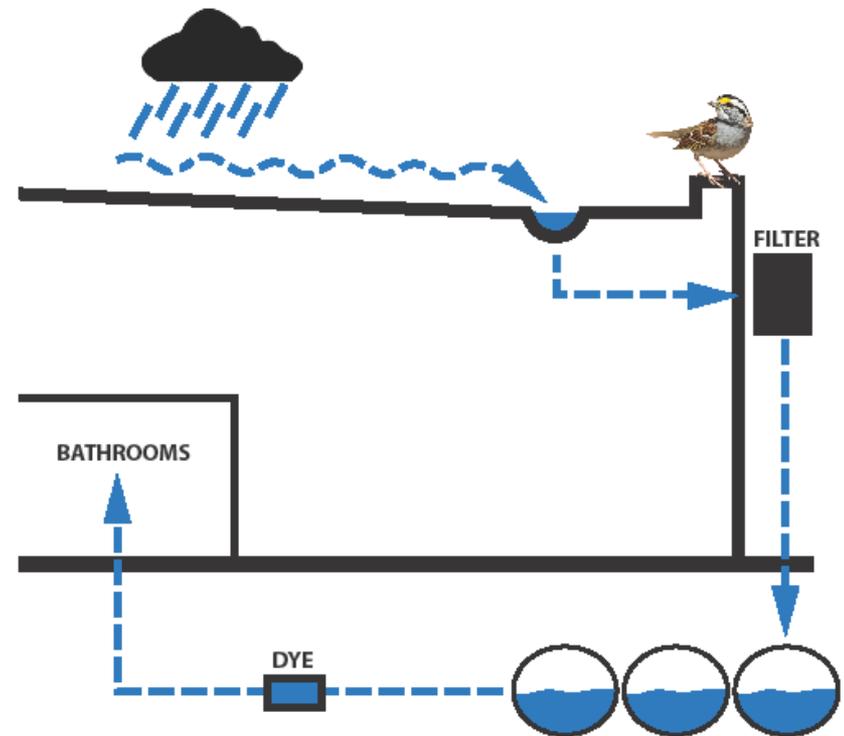
When it rains, the rainwater is collected from the roof, filtered, stored in underground cisterns, and eventually dyed blue before being used in toilets and urinals in the school. So if you see blue water, that means it's rainwater!

To save even more water, the toilets in the school are dual functioning. This allows for two water use options per flush.

Imagine this! By using rainwater, dual functioning toilets, and low-flow fixtures, the school saves 200,000 gallons of water each year!

SMART WATER USE

What makes these bathrooms different?



Challenges

Owner/client

Weigh benefits and dollars:



Costs of system

Maintenance of system

VS

Gallons/water saved

Downsize of stormwater infrastructure

Educational and Environmental

Challenges



College Park example



Educated client, high end environmental goals

- High performance life cycle cost goals
 - (Pay back in 10 years or less)
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- System saves @ 500,000 Gal/Yr
 - Stormwater features downsized by over 50%
 - Geothermal double duty
 - Initial costs paid for in 9.5 years

College Park Elementary

94,500 SF



Challenges

Designing the system



Bag filters



Toilets/Urinals
(Dye)
Irrigation

Challenges

Designing the system

Engineered systems per CODE definitions of Rainwater/Graywater/Reclaimed water

Localities are not all used to these systems

Plumbing code provides definitions, but interpretation usually guides it.

“First ones through the wall get some bruises.”

Challenges

Designing the system

Construction requires attention and a team approach....Requires design oversight.



Challenges

Designing the system

Coordinate early

Constructability review by team is a must.



Challenges

Designing the system Educate the users



The school's roofs collect rainwater to be reused in toilets and irrigation. When it rains, the water runs off the roof, through filters, and then into underground cisterns.

Try this! The next time you go to the cafeteria, go outside to the garden and look for three round lids on the ground. Right underneath those lids are where all the rainwater is stored in three big cisterns.

The three cisterns are as big as the cafeteria!

