



# City of Cañon City

P.O. Box 1460 – 128 Main St. - Cañon City, CO 81215-1460  
(719) 269-9011 Fax: (719) 269-9017



## Second Quarter 2012 Stormwater Management Program News

Last quarter's newsletter introduced Green Infrastructure and its benefits. This issue addresses actual practices which can be utilized at your home and business.

**Site-specific Applications:** The applications listed below are designed to decrease the amount of impervious area and runoff from individual residences and businesses.

- **Disconnected downspouts:** Each downspout on a building can drain about 12 gallons of water per minute during a 1-inch rainfall. Most downspouts direct runoff down driveways and sidewalks or to underground pipes. By redirecting them to vegetated areas the runoff can be used to water lawns and gardens and may help to decrease utility bills during the spring and summer.



- **Stormwater planters:** These are small contained vegetated areas which are designed to collect and treat runoff. They filter the stormwater through layers of mulch, soil and plant root systems. They retain, absorb and degrade bacteria, nitrogen, phosphorous, heavy metals, oil and grease. Infiltration planters then allow the runoff to naturally recharge groundwater. Flow-through planters discharge the runoff to a traditional storm sewer system. These planters do not require a large amount of space and can add aesthetic appeal and wildlife habitat to urban landscapes. They typically contain native flowers, grasses, shrubs and trees. They are not suitable, though, for collection and treatment of runoff from large impervious surfaces.



- **Rain gardens** are landscaped areas planted with wildflowers and native vegetation that receive and absorb runoff. They are primarily used to capture and treat runoff from the roofs of buildings but can be used in other settings. Rain gardens fill with a few inches of water after a storm and then slowly absorb the water. Compared to a conventional patch of lawn, a rain garden allows about 30% more water to soak into the ground. Self-contained rain gardens are designed to infiltrate the majority of runoff while under-drain systems move the excess water into a conventional storm sewer system.



Rain gardens fed by passive rainwater harvesting border the buildings and parking lots of the TAD redevelopment project in Denver, CO. The rain gardens beautify the site, reduce the urban heat island effect, and provide habitat, while reducing runoff to the nearby South Platte River. Photo courtesy of Brook Associates.

- **Vegetated swales** are gently sloping depressions planted with dense vegetation or grass. They are designed to capture, slow down and treat runoff from roofs, streets and parking lots. The vegetation slows the runoff, filters it and allows for increased absorption into the ground. For soils that do not drain well the swale may be lined to move the runoff to a separate stormwater structure.

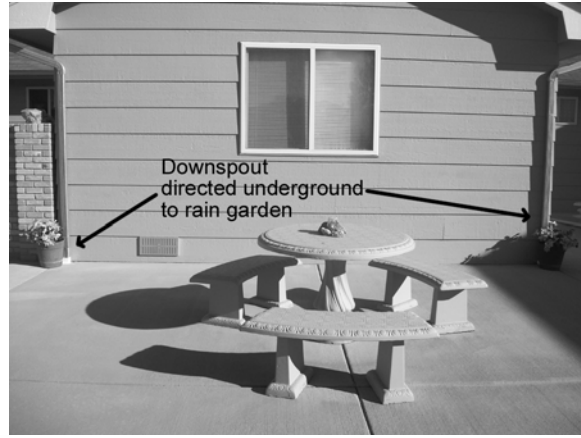


- **Green roofs:** Exactly what it sounds like – a roof planted with vegetation. Green roofs reduce and treat runoff. The green roof installed on top of the EPA Region 8 Office in Denver retains and treats more than 80% of the rainfall it receives. Green roofs also conserve energy by reducing heating and cooling costs and they can significantly extend the lifetime of the roof. Other benefits include providing recreational space and wildlife habitat.

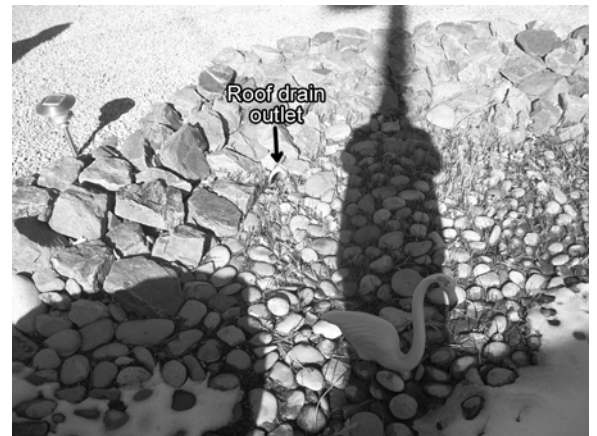


The green roof installed by EPA Region 8 provides welcome open space in the heart of the city. Photo courtesy of Greg Davis.

The following photos show how a local resident utilizes green infrastructure to capture and treat stormwater runoff from his property.



The downspouts from the garage and house are directed to underground pipes which empty to a rain garden. There is a drain in the driveway which also empties to the rain garden.



The rain garden is designed to contain the runoff and allow it to absorb into the ground. Excess water during heavy rains is drained off with another pipe.

For more information about green infrastructure visit the EPA website at <http://cfpub.epa.gov/npdes/home.cfm>.

I would like to thank Mr. and Mrs. Grimes for allowing photographs to be taken of their green infrastructure.

Please feel free to direct any concerns or questions to Glenda DeBekker, City of Cañon City Stormwater Program at either [grdebekker@canoncity.org](mailto:grdebekker@canoncity.org) or 276-5265. You may also write to The City of Cañon City's Stormwater Program, P.O. Box 1460, Cañon City, CO 81215-1460.

#### References:

EPA Green Infrastructure website: <http://cfpub.epa.gov/npdes/home.cfm>.

Green Infrastructure in Arid & Semi-Arid Climates [http://www.epa.gov/npdes/pubs/gi\\_arid\\_climate\\_fs.pdf](http://www.epa.gov/npdes/pubs/gi_arid_climate_fs.pdf)

Rain Gardens A How-To Manual for Homeowners <http://learningstore.uwex.edu/assets/pdfs/GWQ037.pdf>

When it Gets to the Ground Stormwater Solutions Handbook Environmental Services City of Portland OR <http://www.portlandonline.com>