Integrating Stormwater Into the Built Environment

working for clean rivers, healthy watersheds, and a livable, sustainable community

Portland receives an average of 37 inches of precipitation annually. That creates about 10 billion gallons of stormwater runoff per year that washes over streets, parking lots, buildings and other hard surfaces carrying pollutants to rivers and streams. The volume and speed of the runoff can cause flooding and erosion, destroy natural habitat, and contribute to combined sewer overflows (CSOs).

The City of Portland is working with private property owners, architects, engineers, and developers to explore methods of onsite surface stormwater management. Traditional stormwater management emphasizes putting runoff in a pipe to dispose of it. It's an out of sight, out of mind approach that doesn't take into account the fact that stormwater can be an asset when appropriately integrated into building and site design.

Let Nature Take Its Course

Onsite surface stormwater management mimics natural conditions by allowing rain to soak into the ground or filter through vegetation. This reduces the quantity and improves the quality of stormwater flowing from your property to rivers and streams.

Onsite surface stormwater management has other benefits.

- Improves urban wildlife habitat
- Improves neighborhood aesthetics
- Reduces heating and cooling costs
- Decreases landscape maintenance and water use
- Adds property value

Channeling Your Resources

There are a variety of creative and effective ways to manage stormwater onsite to help restore beneficial natural processes, enhance property, and possibly even save money.

Vegetated Roof Systems are ecoroofs and roof gardens that replace conventional roofs and collect, filter and evaporate rainfall. An ecoroof is a lightweight system of waterproofing material with a thin soil/vegetation protective cover. The ecoroof can be used in place of a traditional roof to limit impervious site area. The ecoroof captures and then, depending on the season, evapotranspirates 10-100% of precipitation. Ecoroofs help mitigate runoff temperatures by keeping roofs cool and retaining most of the runoff in warm seasons.

Hamilton Apartments ecoroof captures stormwater

Rainwater Harvesting Systems such as rainbarrels or cisterns capture and store rainwater for reuse for non-potable water applications.

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Rainwater harvesting uses can include water for landscape irrigation and for flushing toilets. Reducing the water you use from the City system can reduce not only your water bill, but also your sewer charges, since they are based on your average winter water use.

Landscape Systems
are swales, planters or other vegetated areas that filter, detain or infiltrate stormwater. Vegetated swales

Parking lot swales help capture runoff and keep pollution out of our waterways

are integrated into site landscaping to slow stormwater flow and to allow sedimentation and infiltration. Trees, shrubs, grasses and ground covers are also used in landscape systems.

Buckman Heights uses stormwater infiltration landscaping and planters

Downspout Disconnection
prevents roof runoff from flowing into sewer pipes and directs it to a landscaped area or other disposal system. Roof runoff from disconnected downspouts can be directed to gardens, swales, lawns, sand filters, infiltration or flow-through planter boxes.

Roof runoff drains to landscape swales at the Water Pollution Control Lab

Porous Pavement
replaces impervious surfaces and allows stormwater to soak into the ground. There are many types of porous pavement on the market today, including special asphalt

Porous pavement allows stormwater to soak into the ground.

paving, manufactured products of concrete, plastic, and gravel, paving stones and brick. These materials are used for walkways, patios, plazas, driveways, parking lots, and some portions of streets.

For more information call 503-823-7740 or visit Environmental Services online at www.cleanrivers-pdx.org.

Environmental Services, City of Portland Dan Saltzman, Commissioner Dean Marriott, Director Printed on recycled paper. OD 0320