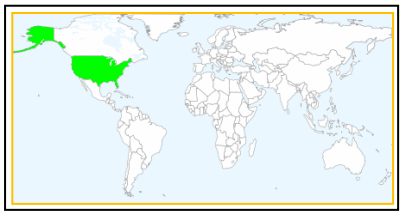
International Green Roof City Network

Case Study Seattle, Washington USA



1) City Data

Location

Seattle, Washington is located in the Pacific Northwest of the United States. The city is situated between Puget Sound to the west and Lake Washington to the east. Oregon is to the south and British Columbia, Canada is to the north.

Area

The City of Seattle is 142 square miles (369 km^2), and the metropolitan area is 8,186 square miles (21,202 km^2)

Population

608,000 in Seattle, 3.4 million in the greater Seattle Metropolitan area

Other Information

The climate is mild and wet in winter, and warm and drier in summer with minimal rain.

2) Description of the local Green Roof Policy Initiative

2.1 Start

There are two drivers of green roofs in Seattle. First is the stormwater code adopted in 2009 and requires Green Stormwater Infrastructure (GSI) to the Maximum Extent Feasible (MEF). Green roofs are included in the code as a best management practice that can be used to reduce impervious area and the quantity of stormwater that must be managed. In addition, the Seattle Green Factor was adopted in 2006. The Green Factor is a landscape requirement designed to increase the quantity and quality of planted areas in Seattle while allowing flexibility for developers and designers to meet development standards. Other relevant programs include the Stormwater Facility Credit Program (provides drainage rate reduction for reduced impervious surfaces) and the Rainwise Programm (resources for residential stormwater solutions)

2.2 What environmental benefits do you expect to see from green roofs?

- ☑ Stormwater management
- ☑ Biodiversity
- ☑ Urban Heat Island Effect
- ☑ Air Quality
- ☑ Climate Change
- ☑ Energy Savings
- ☑ Beautification of the City

2.3 Environmental benefit that is the carrier of the green roof initiative

The primary reason green roofs are part of the Seattle Stormwater Code is to reduce peak flows entering Puget Sound. The Seattle Green Factor's focus is to get more landscaped area and better quality landscaping in the city.

2.4 Support instruments that are used by the municipality to promote green roofs

☑ Building, landscape, energy, or other code or policy (e.g. land-use plan, green roof bylaw, zoning code, green factor, design regulations, etc.)
☐ Reduced stormwater fee
☐ Financial Incentives
☐ Tax Credits
☐ Favourable Credit Terms
☐ Density Bonus
☐ Demonstration Projects
☐ Ecological Labels
☐ Press, Internet
☐ Education and Information (e.g. seminars, conferences, green roof tours, etc.)
☑ Research
☐ Local Green Roof Guidelines
☐ Consultancy offer for constructors, investors, building owner
☑ Other instruments: Green Roof Inventory

Description of support instruments

Building, landscape, energy, or other code or policy:

Landscape Code: Seattle Green Factor (SGF) is a landscape requirement designed to increase the quantity and quality of planted areas in Seattle while allowing flexibility for developers and designers to meet development standards. SGF was modeled after Berlin's Biotope Area Factor and Malmo's Green Factor. The Green Factor was first adopted in 2006 as part of an update to the commercial zoning requirements. SGF currently applies to new development in commercial and neighborhood commercial zones outside of downtown.

Permit applicants in affected zones must demonstrate that their projects meet the SGF by using the Green Factor Score Sheet. Green roofs are one of the measures that developers can use to meet SGF requirements.

Stormwater Code: Seattle's stormwater code was adopted to protect streams and rivers, protect public health and safety, and meet certain federal and state water quality requirements. Green roofs are included in the code as a best management practice that can be used to reduce impervious area and the quantity of stormwater that must be managed.

Research: Seattle is currently collecting rainfall and runoff flow data from several city buildings (the Zoomazium, Ballard Branch Library, Ross Park Shelterhouse, and Fire Station 10). Seattle is also conducting limited grab-sampling of runoff water quality to see if new green roofs are likely to add nutrients to stormwater draining to streams, lakes, and Puget Sound.

Other Instruments: Seattle has conducted an inventory of green roofs in the city. The inventory assesses the type of green roof (extensive, intensive, combination of the two), area, and other characteristics. The inventory is used to gain better understanding of green roofs and the associated costs and benefits regarding watershed health, infrastructure and building expenditures for public and private stakeholders, and air, water and habitat quality.

3) Number and area of green roofs

Data as of December 2009
Total number of green roofs = 62 (32 extensive, 23 intensive, 7 combination extensive and intensive)
Total area = 359,375 square feet (33,387 m²)

4) Challenges and future prospects

A proposal has been made to apply SGF in multifamily residential zones in the South Downtown planning area.

5) Contact persons

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6) Internet resources

Seattle Green Factor
http://www.seattle.gov/dpd/cityplanning/completeprojectslist/greenfactor/whatwhy/

Stormwater Management Manual
www.seattle.gov/dpd/codes/dr/DR2009-17.pdf