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How Seattle can help green roofs to really grow

■ *To move green infrastructure to the next level, the industry needs one more push.*

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Green roofs have developed great momentum in Seattle's building industry in recent years, thanks to a growing body of built examples and performance data.

The city now finds itself with a unique opportunity to spark widespread acceptance of green roofs through a collection of policies, programs and incentives.

Two of the city's policies have been instrumental in moving the green building industry forward in recent years. First, the adoption of a floor-area-ratio density bonus program gave developers the ability to increase the size of their buildings in exchange for achieving LEED silver certification. This allows increased square footage to offset the costs of building green.

In 2008, the city spurred a second breakthrough in green building when it procured the state Department of Ecology water rights on behalf of all properties in Seattle's combined sewer areas, allowing property owners to legally collect and reuse rainwater within their buildings. Before, projects were restricted from implementing innovations in water reuse that minimize long-term utility costs, reduce pollution in Puget Sound and reduce the size of stormwater detention vaults.

Roofs still rare

Olive 8, a new hotel/condo development in downtown Seattle, is an example of a project that took advantage of the FAR density bonus, but is still looking for support of projectwide green roofs. As part of achieving LEED silver certification, two green roofs were considered, one on the fourth floor and one on the 39th floor.

The developer, R.C. Hedreen, saw the value of improving the view of the fourth-floor roof for its condo and hotel units. R.C. Hedreen also saw the benefit of testing two green roof systems — a tray system and a pre-grown mat system — to help inform its choices on future projects.

Without the added aesthetic value of the green roof being viewed from the building, the 39th-floor green roof has been more difficult to justify, so the developer is now working with the city to come up with ways to make it a reality. Many Seattle developers have found themselves in the same situation, seriously considering green roofs for their buildings; however, only a fraction of these green roof designs are ever built.



Photo courtesy of Fairmont Hotels & Resorts
Green roofs can provide open spaces, habitat and even a place to farm. The Fairmont Waterfront Hotel in Vancouver, British Columbia, saves its restaurant \$30,000 a year in food costs by growing herbs, flowers and vegetables on its roof.

The city has already implemented a number of programs to build technical and financial support for green roofs, and is taking additional steps to push the industry toward making green roofs a reality for many projects. A growing list of landscape architects, sustainability consultants, architects and engineers have collaborated with representatives from Seattle Public Utilities, the Seattle Department of Planning and Development, and the Department of Ecology to help expand these programs.

Building support

One program making great strides for green roofs is the Green Factor, Seattle's landscape requirement program introduced in 2006.

Green Factor provides developers with a variety of flexible strategies to increase layers of vegetation and stormwater infiltration. The aim is to restore the ecological function of urban sites to predevelopment conditions.

Dave LaClergue, the land use planner heading DPD's Green Factor Program, reports that of the projects that have been submitted since the program's inception, a third include green roofs. As these projects begin construction, building owners and developers will learn from these examples and feel more comfortable including green roofs on their own projects.

"We are headed towards a tipping point for eco-roofs in Seattle" says Joel Banslaben, a sustainable strategies specialist at Seattle Public Utilities.

He explains that in the last two years Seattle has seen a significant increase in eco-roofs because of programs like Green Factor. SPU is currently developing comprehensive policies to support the technology behind green roofs, or eco-roofs, as Banslaben calls them.

He is conducting a green roof study that will describe the public and private benefits. He is also compiling an account of green roofs in Seattle and the market's response to policies under consideration, as well as a review of policies and incentives in other cities around the world.

"Right now, we are mainly focusing on reduced stormwater infrastructure and energy benefits of eco-roofs," Banslaben said.

He is even more excited about other benefits, including urban agriculture, reduction of urban heat island effect, wildlife habitat and public spaces/parks.

Climate impacts

SPU is collaborating with the Department of Planning and Development to make the connection between green roofs and climate change.

Banslaben explains, "As we add more population, we infill the city with more buildings, the urban heat island effect raises the temperature by several degrees, and energy use goes up in the downtown core."

Green roofs can reduce these impacts while providing beautiful open spaces, habitat and income from healthy, local food production. The Fairmont Waterfront Hotel in Vancouver, British Columbia, for example, saves its restaurant \$30,000 in food costs per year by growing herbs, flowers and vegetables on its accessible roof.

According to April Mills, a sustainable strategies specialist with SPU, Seattle will update the stormwater code this year, requiring many projects to implement green stormwater infrastructure to the maximum extent possible.

Green roofs represent one possible strategy, and in urban areas where available pervious landscape is scarce, developers will be required to consider such strategies.

Cost benefits

SPU is working to provide financial incentives for including a green roof through reduced stormwater impact fees. A green roof effectively reduces the footprint for a project with regard to stormwater management. In Seattle, these fees are anticipated to increase dramatically in coming years.

Large landowners and facility managers such as universities or school districts face annual costs associated with roofs through stormwater impact fees, maintenance and routine replacement.

It makes sense to seriously evaluate the potential savings that green roofs can provide since large universities may own upwards of 400 roofs and replace approximately 20 roofs each year. Since extensive green roofs can double the lifespan of a roofing membrane, this has obvious maintenance and cost benefits.

More incentives

As Seattle develops tools to promote green infrastructure, we can look to other cities making strides in this area.

Portland offers comprehensive policies to encourage green roofs, including a density bonus based on eco-roof coverage relative to a building's footprint, a grant reimbursement up to \$5 per square foot to help reduce stormwater infrastructure, a stormwater fee offset, and a rule that all city-owned facilities must provide a minimum of 70 percent eco-roof coverage.

So when will green roofs in Seattle reach a tipping point?

Green roofs offer numerous environmental benefits, and only when those benefits outweigh the costs will we see the greening of our city's roofscape. To move green infrastructure to the next level the industry needs one more push.

The following would be some effective steps:

- Add a green roof incentive to the current density bonus program.
- Fund pilot projects that will explore and test new green roof ideas, like urban agriculture.
- Develop programs that create incentives for green roofs.
- Promote stormwater impact fee benefits.
- At a minimum, match Portland's cash incentive of \$5 per square foot to reduce stormwater infrastructure.

Peter Dobrovolny, sustainable building coordinator and commercial expert in the green building program at DPD, says it best: "The city of Seattle has supported green roof technology for many years. It is time to stop writing studies and holding meetings and start building green roofs."

Thankfully, there are many programs that already exist or are anticipated, and if we connect the dots we can tip the scales toward a greener future.

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