

A Growing Alternative

Green Roofs in Nanaimo BY KIM A STEPHENS AND ROB LAWRENCE



On Vancouver Island, a unique four-way partnership is advancing green roof research at four locations. The partners are Vancouver Island University (VIU), Island West Coast Development (IWCD), Regional District of Nanaimo (RDN) and City of Nanaimo.

Early success resulted in the scope of the research initiative expanding from a single green roof to four demonstration projects: IWCD head office, VIU Nanaimo campus, VIU Cowichan campus and the RDN Transit building.

“The initiative started with a willing developer — Greg Constable, owner of IWCD. His decision to build a LEED Gold head office at 2214 McCullough Road in Nanaimo created the opportunity to install an experimental green roof and performance monitoring system as part of the construction of his new office building,” explains Dr. David Gaumont-Guay, VIU lead researcher.

Precedent Setting Research Objectives

“Each roof consists of a growing medium (soil mix) planted with endemic plant species of central Vancouver Island,” continues Gaumont-Guay. “The infrastructure is installed permanently over the conventional roof structure. Since June 2011, we have been monitoring the performance of the green roofs with respect to ability to store carbon (sequestration), to modify roof microclimate and thermal insulation, and to provide better management of rainwater.”

Green roofs have an immense potential for offsetting carbon emissions originating from building operations, says Gaumont-Guay, but this information is currently unavailable. In 2009, the need for Vancouver Island research was highlighted through a series of meetings between IWCD, building and landscape architects, academic members of the Vancouver Island University community and the City of Nanaimo. This

resulted in a successful grant application to the Canada Foundation for Innovation (CFI).

“This type of research had not been attempted before. In fact, we are still at the forefront,” he says. “Although industries are currently able to calculate their carbon emission rates related to building operations, ways to calculate their carbon offset potentials are limited.”

The partners envision that the research could help in development of policies for land-use planning at municipal, provincial and national levels. It also has the potential to lead to changes in the LEED certification program. The project is also serving as an education platform for industries and municipalities, as well as students, technicians, researchers, and private and public sector employees.

“We are using the green roof data as a teaching tool. The research process is integrated into the VIU curriculum,” emphasizes Gaumont-Guay. “Also, study involvement is a critical success factor. For example, Robert Halsall will be co-presenting with me later in 2013 when we present our results at a conference in San Francisco. His responsibility is the comparative analysis for the four roofs.”

A Unique Partnership

Gaumont-Guay says the project represents a unique opportunity “for industry, IWCD, the City of Nanaimo, the Regional District of Nanaimo, provincial and federal governments and Vancouver Island University to work together to understand the greenhouse gas budget of Canada.”

Solutions to climate change often originate from small scale community initiatives. This project is an excellent example of local scale action that can provide valuable information. Any reduction in greenhouse gas emission or increase in carbon sequestration (storage) is good for the environment.

Utilizing plants on specially designed green roofs to enhance carbon sequestration in the

heart of a community, where many emissions are produced, is a logical step in moving towards carbon neutral communities.

“I’m very pleased about this latest support from the CFI for Vancouver Island University,” says VIU president Dr. Ralph Nilson. “This industry-academic-government partnership represents a unique opportunity to develop initiatives aimed at reducing the ecological footprint of urban development.”

The New Business as Usual

“The education opportunities offered by this site for other builders is significant and helps the city better understand how green building development can unfold in medium sized communities, like Nanaimo,” comments Gary Noble, the development approval planner for the City of Nanaimo.

“Since this project began, we have seen greater traction from the development community in incorporating green design within a variety of development projects. The city appreciates the work and dedication of VIU and firms, such as IWCD, that continue to innovate and search for cost effective ways to work with our development partners as we work to complete our sustainable design guidelines.”

Other IWCD projects, such as the 28 acre Green Rock Industrial Park (www.greenrockindustrial.ca), demonstrate a new business as usual that incorporates a variety of rainwater retention techniques including a network of rain gardens, swales and absorbent landscape soils all designed to hold and slowly release water off site within the industrial park.

“The city also recognizes the leadership of supporting firms, such as Easy Living Landscaping, who are providing ways to allow local developers to fulfill their vision in a more sustainable manner,” says Noble.

Meeting a LEED Gold Standard

When Constable, owner of IWCD, made the choice to push the envelope and certify his head office as a LEED Gold project, it was a strong statement of his commitment and leadership in working with the city in a new fashion.

“Greg has had the project photo documented and this documentation is posted on the IWCD and city web sites. This includes a time lapse video as it was built,” says Noble. “This collaborative approach involving consultants, developer, Vancouver Island University and the city has morphed into a dynamic working group that one could never have predicted from the start point.”

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