

Timber and Steel

In Ballard, a new branch Seattle Public Library is a showcase of eco-efficient architecture.

by Kirsten DeLara

A ship's bow, a periscope, an unruly crown of lawn—could it be a boneyard for boats? An innovative work of art? Actually, it's the new Ballard library, the 15th branch to be built or renovated under Seattle's "Libraries for All" bond measure. It boldly blends elements of Ballard's heritage with cutting-edge environmental technology. Opening Saturday, May 14, it might be the "greenest" building in town. It's certainly unique among the city's branch libraries. Consider it a gift for Earth Day, which is Friday, April 22.

The new Ballard Branch has a huge, upwardly arched roof supported by enormous wood rafters, which cantilever out to cover the building, an attached neighborhood center, and outdoor community space. At the northwest corner, there is a tall, curved structure covered in galvanized-steel shingles. It looks like a ship's bow; closer inspection reveals it is a meeting room.

The new building, on 22nd Avenue Northwest, a block north of Northwest Market Street, is the result of an ambitious effort by the Seattle Public Library, architects Bohlin Cywinski Jackson, and Ballard neighborhood residents to push the limits of green design and education. Some of the highlights include:

- An 18,000-square-foot sod roof, which provides thermal insulation, serves as bird habitat, and moderates rain runoff. Any water not used by plants is filtered through the soil and slowly released.
- Two types of solar collectors: standard roof-mounted panels and an innovative model that uses photovoltaic glazing inside vertical panes of glass. Both collect solar energy, which is fed back into the city's electricity grid, reducing the project's reliance on power supplied by Seattle City Light.
- Functional public art that monitors and displays data about the microclimate around the structure. Wind direction and speed, energy use, light, and rainfall are artistically presented along building spines.
- High air quality through use of recycled materials and by applying internal finishes outside the building, which will reduce interior "off-gassing" by building-material chemicals. Air intakes are positioned to exploit prevailing breezes.
- Conservation of old-growth trees. The 1-and-a-half-foot wood beams are actually smaller pieces of yellow pine glued together, enabling use of smaller lumber.
- Pedestrian-friendly touches. Twenty-Second Avenue was rezoned as a pedestrian-oriented street. Librarians will encourage ride sharing, public transportation, bicycling, and walking.

The project began in 1999 with the first of many community meetings. Residents discussed the merits and drawbacks of nine potential building sites and remained involved throughout the process. In 2000, at another meeting, residents helped evaluate architectural firms. In 2001, the Ballard Library Project Advisory Committee was formed, composed of local residents, architects, business owners, and artists. Later that year, residents attended a community meeting to communicate their concerns and educate the architects about Ballard. In 2003, residents viewed the design of the new branch and neighborhood service center prior to approval by the Seattle Design Commission. In February 2004, construction began.

When construction commenced, the builder, PCL Construction Services, faced a number of challenges incorporating some of the green technologies, one of which was the roof. Kyle Richardson, PCL's project manager, knows the numbers well: 644,000 pounds of dirt and 85,000 pounds of bark mulch under a coconut-fiber membrane. Inserted into that were 13,540 plants— 11 species. A plastic egg-crate retention system under the dirt will hold 1 and a half inches of water over the whole roof, ready for plant intake. And if it doesn't rain? A soaker-hose irrigation system was installed, in case of drought.

Another challenge on the roof was sloping. While sod roofs are normally flat, this one resembles a very relaxed "U." Along the highest part, a bank of solar panels was installed to take advantage of southern exposure. The unevenness of the roof creates some microclimates, with the higher slopes draining more quickly and the valleys exposed to divergent sun and wind conditions. Says David Kunselman, Ballard project manager for the Seattle Public Library: "In designing the roof and [installing] different species of plants, we wanted to let Darwin take over. If certain species want to go in another area, or if they wanted to take over some other species, go ahead." A periscope near the circulation desk gives patrons a way of keeping an eye on things up there.



**On the roof, solar panels (foreground), sod and weather instruments(background).
(Nic Lehoux)**

The trickiest installation for PCL, however, was setting up the photovoltaic windows in the neighborhood service center, one of the first such installations in the U.S. Imported from Germany, the flat glass panes are mounted to form a curve, to take in the most sunlight possible throughout the day. As the sun moves, the panes will each generate a different level of energy. Voltage meters were mounted in the neighborhood center to display the output from each of the three-pane windows. The glazing on the panes eliminates the need for shades, creates privacy, and reduces overheating from direct sunlight. Says Kunselman, "We'll be generating a measurable amount of electricity, but the intention is to really let people

know what can be done in the Northwest with solar technology. It's a great opportunity when you layer on these things, enough different items, grab people's attention, and make things right for the building and the environment. It's a rich environment for people to step into. They might not see it the first time, but then they come back and it's different—it's not a static environment."

This ambitiously green library is right in line with the High Performance Green Buildings Act signed by Gov. Christine Gregoire on April 8. Washington is the first state requiring new public buildings over 5,000 square feet in size to meet standards for water conservation and energy efficiency. The Ballard library branch is 15,000 square feet.

Because it's a public building, the Seattle Public Library used an expert design team and consultants to weigh the environmentally correct thing to do against protecting public investment and the longevity of the building. The only unproven element, officials say, is the solar-energy collecting windowpanes.

Seattle City Light's "green power" program paid for the rooftop solar panels and the film glazing between the glass panels, as well as provided technical support for the system's installation. The library project had to undergo an evaluation process to see if it met Seattle City Light's goals. Was it a demonstration project? Could it educate the public on the possibilities to generate green power? Concludes Kunselman: "We have every expectation that it will work well, but if it doesn't, we still have the nice shading in the windows."



(Nic Lehoux)

So what was the extra cost of going green? Officials say there was none. The library was finished a bit early and on budget at \$10.9 million. Costs would have been higher without the Seattle City Light program. But by choosing elements that serve multiple purposes—the glazing replaced the need for shades, for example—the architects were able to keep costs down.

Robert Miller, the project manager for Bohlin Cywinski Jackson, is proud of the design elements used to increase environmental awareness and energy sustainability. "This building has a lot of merit in its ability to teach people about the environment and some of the priorities we set for ourselves in the Pacific Northwest. . . . Things people can do to save energy, renewable energy sources like solar, how to use daylighting, airflow for natural ventilation, and nontoxic materials. Libraries are always depositories of knowledge, and we wanted this building to be more of a teaching tool, in addition to its normal function."

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The grand opening of the Ballard Branch Library and Neighborhood Service Center will be held at noon Sat., May 14, at the library, 5614 22nd Ave. N.W. Events will include architect presentations, artists, community performers, and children's craft projects. For more information, call 206-386-4636.