

RESPONSIVE ARCHITECTURE IN TACOMA, WASHINGTON'S CENTER FOR URBAN WATERS



Tacoma, Washington is no stranger to LEED Platinum government buildings, but how about going a step further and creating one that actually has the capacity to react to its environmental conditions and alter itself in order to minimize its energy use? Tacoma's Center for Urban Waters; a 51,000 square-foot office and laboratory building, was completed in April of 2010 and houses the City of Tacoma Environmental Services labs and offices, University of Washington Tacoma researchers, and the Puget Sound Partnership.

The Perkins+Will's innovative design is a remarkable feat in sustainable building. Not only is the Center for Urban Waters certified LEED Platinum, the highest possible rating under the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) green building certification system.



But by utilizing an array of sensors and systems this modern building is capable of monitoring and measuring its energy and water use in real-time. Depending on the environmental conditions, the building can automatically alter external shades to help cool or heat the building via sunlight, reducing the need to use energy, and allowing it to keep running at its greenest possible performance.

The Center also includes other sustainable features such as:

- A 12,000-square-foot green roof absorbs rainfall and filters pollutants from the air and rainwater – then stores the water in two 36,000-gallon tanks;
- The two tanks that collect storm water from the green roof and water rejected from the laboratory’s pure water system are used to flush toilets and irrigate plants;

- Ground source heat pumps use the constant temperature of underlying groundwater to heat and cool the building;
- Motorized exterior shades on the west side of the building are programmed to automatically adjust to daylight levels throughout the day;
- Landscape design uses native and adapted plants which require less water and fertilizers, provide habitat for birds and animals, and protect the water quality in Puget Sound;
- A 75-foot dock has been constructed to accommodate water-monitoring vessels;
- The facility also uses 34% less energy and 46% less water than a standard building.

Source: <http://www.globalsiteplans.com/environmental-design/responsive-architecture-in-tacoma-washingtons-center-for-urban-waters-buildings-that-adapt-to-environmental-conditions/>