

The Biological Sciences and Computational Sciences Facilities on the PNNL campus are LEED® (Leadership in Energy and Environmental Design) Gold certified. The LEED U.S. Green Building Rating System is the nationally accepted benchmark for the design, construction, and operation of high performance green buildings. LEED promotes a whole-building approach to sustainability by recognizing performance in water conservation, energy efficiency, materials selection, sustainable site development, and indoor environmental quality. In addition, PNNL utilizes numerous LEED Accredited Professionals who implement the knowledge and understanding of proper building practices, LEED principles, and the LEED rating system.

"The success this project has, with regards to sustainability, will be realized because of the forethought during the initial project inception."
– Gary Watkins, Lead Architect



The Biological Sciences and Computational Sciences Facilities are a cornerstone in PNNL's Capability Replacement Laboratory project, which will transform PNNL into one of the most modern laboratories in the national laboratory system.

ADDITIONAL INFORMATION

Pacific Northwest National Laboratory

<http://www.pnl.gov/>



U.S. Green Building Council

<http://www.usgbc.org>

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Proudly Operated by **Battelle** Since 1965

Biological Sciences and Computational Sciences Facilities



LEADING THE WAY IN
SUSTAINABLE DESIGN
AND OPERATIONS



BIOLOGICAL SCIENCES FACILITY

72,000 square feet • Houses 130 staff

The **Biological Sciences Facility** houses state-of-the-art analytical equipment and powerful computing capabilities that enable scientists to combine experimental and computational approaches. Here, scientists focus on gaining a fundamental understanding of biological systems that are needed to use micro-organisms for renewable bioenergy and carbon sequestration; preventing contaminants from moving through groundwater; and improving systems-level understanding of how low-dose radiation and other factors affect human health.

The Biological Sciences and Computational Sciences Facilities were recently constructed using the following concepts and principles of sustainable design.

WATER EFFICIENCY

- 30% reduction of water use by using low-flow fixtures

ENERGY AND ATMOSPHERE

- 30% less energy is consumed compared with similar laboratory facilities
- Ground source heating and cooling system
- Heat recovery chiller system
- Optimization of lighting system layout and controls
- Indirect evaporative cooling system
- Evaporative heat pipe recovery system for “once through” laboratory air
- Exterior LED lighting
- Green Power Purchasing for more than 35% of energy consumed
- Enhanced commissioning
- Enhanced energy metering
- Variable air volume fume hoods

MATERIALS AND RESOURCES

- Diverted 95% of construction waste

INNOVATION AND DESIGN PROCESS

- Apply existing PNNL green housekeeping practices including staff training and green purchasing
- Assign preferred parking for car pool/van pools and fuel-efficient vehicles
- Implement existing comprehensive recycling program at PNNL



COMPUTATIONAL SCIENCES FACILITY

73,000 square feet • Houses 170 staff

The **Computational Sciences Facility** houses innovative data-intensive and high-performance computing hardware and software technologies that allow PNNL scientists to develop solutions for the growing challenge of data overload - a problem common to the scientific and national security communities. The CSF is home to the Center for Adaptive Supercomputing Software, which provides solutions for improving the execution speed of irregular, data-intensive applications like power grid analysis and bioinformatics. PNNL researchers who support the National Visualization and Analytics Center also work in the CSF. NVAC is a Department of Homeland Security program that is helping local and state emergency responders and government analysts understand and address terrorist threats.

