



LCC Health and Science Building

LEED Gold (Goal)



Project Specifics

Gross square footage:	70,000 sf
Construction cost:	\$42,000,000
Project occupied:	2014
Water savings:	42.7%
Waste recycled:	75%
Awarded	Pending

Design and Construction Team

Owner's representative:	Nolan Wheeler, LCC Richard Hamilton, LCC
Project manager:	Ronnie Hill, DES
Architect:	Leavengood Architects
Contractor:	Emerick Construction
Design Architect:	Rovelstad Architects
Mechanical engineer:	Wood Harbinger, Inc.
Civil engineer:	SAEZ Consulting Engineers
Electrical engineer:	Wood Harbinger
Landscape architect:	Karen Keitst, Landscape Architect

The Health and Science Building houses all LCC healthcare and science programs under a single roof for the first time in the college's 80-year history.

The Health and Science Building is not just a building to learn about the Sciences and Health Care. It is a building designed to experience the connection to nature and science through both passive and active system design.

Details are crafted with the intent to inspire critical thought about community, sustainability, nature, water, sunshine, energy conservation, the integration of technology and the role that science plays in our everyday lives. We seek to preserve and energize the "uniqueness of place" and use this project as a communication tool to tell the story and inspire our next generation of scientists.

Classrooms and labs are designed to take advantage of natural light supplemented with highly-efficient, motion-activated LED fixtures to conserve power usage. Easy-to-move tables and chairs maximize the flexibility of classrooms for a variety of study configurations and accommodate up to 50 students, almost double the capacity of previous science rooms.

Spaces for eating, socializing, and individual and group study are located on all floors to bring faculty and students together outside the classroom. Research shows that this kind of interaction and cohort study increases student success. Digital displays and interactive computer screens on each floor keep students and faculty informed about important dates and upcoming activities.

Sustainable Sites

Alternative Transportation: Bellevue College is served by 4 bus lines with 0.25 miles of the site. Bicycle storage, shower/changing facilities and racks have been provided.

Light Pollution Reduction: All new light fixtures for the site are shielded to prevent light pollution of the night sky, the natural environment and crossing the property boundary. Existing Campus Street Lights have been retrofitted to minimize the night sky pollution while providing a safe and secure campus.

The College has committed to LEED – NC v2.1 IDc1.1 CIR ruling for achievement of a Green Housekeeping program.

Water Efficiency

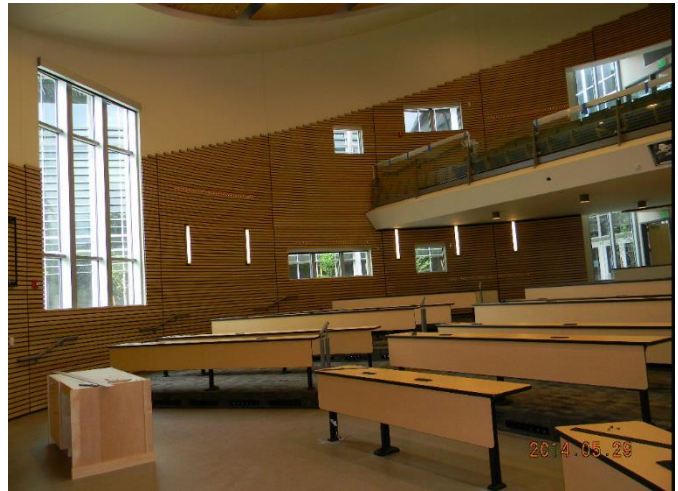
The site is located within the drainage basin of Lake Sacajawea where the importance of water conservation and the control of runoff is critical. The redeveloped site area is 3.83 acres and will be 64 percent impervious and 36 percent pervious; representing a reduction of impervious surface from the pre-development condition of 4 percent or 0.15 acres.

Three infiltration trenches are located adjacent to the building (1,020 sf) and under the rain gardens in the parking lot landscaped islands (2,175 sf). The rain gardens treat storm water runoff by filtering the runoff through vegetation and amended engineered soils.

Irrigation: Portable water has been reduced by 42.7 percent. The approach for water harvesting, detention and conservation is defined as passive. With the exception of irrigated turf, planting material chosen is native and drought resistant. Once established, irrigation will not be needed. This helps offset the open lawn areas required as a programmatic requirement for graduation ceremonies.

Additions: This project used a combination of high efficiency fixtures including low flow water closets, dual flush toilets, water efficient faucets, low flow urinals, lavatories and kitchen sinks all contribute to the reduce water use for the Structure.

The green roof at the third floor reduces the impervious surface to provide a reduction in the water runoff. Public areas are located adjacent to the green roof as an education tool.



Material and Resources

Occupant Recycling: The facility has been provided with appropriately sized dedicated areas for the collection and storage of recycling materials, including paper, plastic and glass.

Recycle Materials: the project diverted over 75 percent of on-site construction waste from landfills. Recycled materials include: steel, cast in place concrete, rebar, precast concrete, suspended ceiling panels, insulation, sheathing, and casework.

Local Materials: Exposed steel and concrete constitute a visual expression of recycled and local materials utilized in the structure. 20 percent of total building materials and/or products have been extracted, harvested, or recovered, as well as manufactured within 500 miles of the project site. Local material used on the project include rebar, steel, cast in place concrete, casework, steel studs, dens glass sheathing, specialty doors, and gravel.

Low-Emitting Materials: Indoor air is protected by the choices of carefully researched finishes and other potential sources of fumes. All sealants, paints and adhesives were selected for low volatile organic compounds (VOC) content. Floor finishes with low VOC include carpet, exposed concrete, concrete sealers, linoleum, and terrazzo. Filtration in the mechanical system exceeds standard industry practice. Operable windows in the administrative areas allow users to control fresh air entering their spaces.

Rapidly Growing Material: The warmth of wood is complimented by the use of sustainable harvested wood as established by the Forest stewardship Council.

Energy and Atmosphere

A highly insulated building envelope including a large roof overhang and sunshades located in large glazed areas minimize heat gain. The energy performance rating has been calculated at 31 percent according to the ASHRAE methodology.

Natural Light: The project achieved a minimum 2 percent glazing factor or a minimum daylight luminance of 25 foot candles in 75 percent of all regularly occupied spaces. Light sensors are zoned in each room to balance required light levels. Classrooms are zoned to turn luminaries on only when electric lighting is needed, thus reducing the electrical load on the project. When

Chilled Beams: Chilled beams are a natural convection HVAC system designed to heat and cool the structure. Pipes of water are passed through a “beam” (a heat exchanger) integrated into the ceiling systems. As the beam chills the air around it, the air becomes denser and falls to the floor. It is replaced by warmer air moving up from below, causing a constant flow of convection and cooling the room. We have achieved a 30 percent reduction in energy from the use of chilled beams.

Solar Panels: Translucent photovoltaic panels are working triple duty. They not only produce energy, but are designed as part of the sun protection on all of the southern exposures and serve as an educational tool. The solar panels are visible from the exterior and to the users inside the structure. They are crafted to be a constant reminder about capturing natural energy. A summary of energy usage is posted online and visible at a dedicated computer on the first floor. In 2015, the building produced 97,000,000 KWh with a carbon offset of 67,343,000 kg's.



Innovation in Design

Education: We approach the education of sustainable features not just as documentation of what we have achieved but as a learning tool. Details are crafted to tell the story about sustainability:

- Controlled water, drips from the roof overhangs to the rain gardens at the first floor level.
- The expression of water from lecture hall roof flows to a collection point at the front entry.
- Translucent solar panels are integrated into the roof overhangs so that they are visible from the exterior as well as the interior area. They are designed to be experienced instead of hidden.
- Solar Energy Summaries are online and displayed at the first floor lobby.
- Visible sun control that protects and captures light and tells the story of passive design consideration.
- Stairways are celebrated and connect visually to both the interior and exterior spaces. This inspires movement and improves health.
- An educational display highlighting the building's sustainable design features and an educational outreach program is ongoing and active.

