



SUSTAINABILITY WALKING TOUR

Welcome

UBC’s Okanagan campus aspires to build and demonstrate a sustainable campus that reflects a balance in its environmental, economic, and socially responsible values across campus operations, teaching, learning, and research. Measures to advance campus sustainability include a whole systems approach to resource, facilities, infrastructure and ecosystem planning—where the greatest potential for net-positive impacts on the ecology, economic sustainability and well-being of the campus community can be realized.



WHAT IS LEED®?

LEED® (Leadership in Energy and Environmental Design) is a green building rating system in which points are awarded to buildings that meet specific green performance criteria. Performance categories include:

- sustainable sites
- energy and atmosphere
- materials and resources
- water efficiency
- indoor air quality
- innovation and design

WHAT IS REAP?

REAP (Residential Environmental Assessment Program) is a green building rating system— similar to LEED® —developed by UBC for its residential buildings. The application of REAP standards is required for all new UBC housing developments, with performance measures ranging across five categories from basic compliance to platinum level.

WHAT IS THE GREEN GLOBES RATING SYSTEM?

Green Globes is a revolutionary green building guidance and assessment program that offers an effective, practical and affordable way to advance the overall environmental performance and sustainability of commercial buildings. It recognizes buildings that improve energy and environmental performance in the following areas:

- management
- energy
- emissions
- site
- water resources
- indoor environment



WHAT IS THE GEO-EXCHANGE DISTRICT ENERGY SYSTEM (DES)?

The DES is an energy distribution system that provides heating and cooling to new academic buildings and heating to legacy academic facilities on campus. Deriving a portion of its energy from renewable aquifer-sourced ground heating, the system transfers heating or cooling energy from an aquifer water loop into campus distribution piping on a separate closed loop. It combines simultaneous heating and cooling, enables waste heat to be harvested from data centres and other sources, and facilitates energy sharing between buildings.

The DES is a significant engineering achievement towards renewable energy supply on campus and helps reduce harmful greenhouse gas (GHG) emissions from traditional gas-fired heating systems.



Sustainability Milestones

Supported by UBC's leadership commitment to sustainability, UBC's Okanagan campus has taken measures to integrate sustainability across its campus operations and academic pursuits. Achievements continue to be generated through conscientious campus development: green building practices, resource conservation and waste reduction leadership, student-driven projects, behavior-change programs, social marketing campaigns, and community engagement initiatives.

2007

U-Pass – Student Universal Bus Pass Program initiated.

Charles E. Fipke Centre for Innovative Research



Charles E. Fipke Centre for Innovative Research completed and is the first UBC facility on the aquifer-sourced geo-thermal heating and cooling system. Awarded five Green Globes (equivalent to LEED® Platinum), Fipke is the first laboratory building in Canada to achieve such a rating, and earned the FortisBC PowerSense Partners in Efficiency Award for energy savings.

Lower Cascades student residences completed to **REAP Silver** standard.

First bi-annual campus **waste audit** conducted.

First prototype of **WaterFillz** kiosk installed in Science building's main foyer.

2008

2009

University Centre (UNC) completed to **LEED® Gold** standard.

Nicola student residence completed to **REAP Silver** standard. Nicola has high-efficiency windows and HVAC systems, and utilizes solar panels to pre-heat its domestic hot water, reducing reliance on gas-fired heating.

Upper Cascades student residences completed to **REAP Silver** standard.

Geo-Exchange Control Building established.

University Centre (UNC)



2010

Okanagan Sustainability Office established by UBC.

UBC Okanagan awarded **City of Kelowna's Mayor's Environmental Award** for Most Sustainable Development.

Achieved **carbon neutral operations** through public reporting and offsetting of in-scope greenhouse gas (GHG) emissions, in compliance with provincial GHG reporting legislation.

Launched **shift**, an annual campus sustainability publication.

Developed and implemented **anti-idling** practices for campus fleet vehicles.

Arts and Sciences II completed and awarded **five Green Globes**, serving as a national and world leader in energy and environmental performance.

Cassiar student residence completed to **REAP Silver** standard. Cassiar features a high-performance envelope, including insulation, window placement, and solar tint glass.



Arts and Sciences Centre

2011

Sustainable Community Development Grant Pilot Program launched and three projects awarded funding: social sustainability through local food and story, reducing potable water in civic parks, and the sustainable transportation ComPASS pilot project.

Purcell student residence completed to **REAP Gold Certification** and received **FortisBC PowerSense** Award for Energy Efficiency Measures in Design and Construction. Purcell features solar panels for hot water pre-heat, a horizontal geo-exchange loop, occupancy sensors, and high-efficiency furnaces, water and lighting fixtures.

Reichwald Health Sciences Centre (RHSC) building completed to **LEED® Gold** standard.

Vegetated roofs installed on EME, RHSC, and Purcell student residence.

Engineering, Management and Education (EME) building completed to **LEED® Gold** standard.

Composting program established in main kitchen facilities and beside main waste stations throughout academic buildings. Installed two Earth Tubs that compost organics, diverting material from the landfill.

Installed six **electric vehicle (EV) charging stations** in Lot E.

2012



Purcell student residence certified **REAP Gold**.

"Your Waste, Your Responsibility" campus-wide waste management campaign established.

Implemented **green housekeeping** practices to **Green Seal Standards for LEED® certification**.

Building Optimization Program established in partnership with FortisBC.

Awarded the **FortisBC Conservation Excellence Award** for gymnasium lighting upgrade, and two Re/MAX Thompson Okanagan Commercial Building Awards: **Institutional Award** for Purcell student residence and **Green Award** for the Geo-Exchange District Energy System.

Closed loop geo-exchange district energy system (DES) achieved full operation, following integration of original academic buildings into the loop.



Engineering, Management and Education (EME)

2013

Reichwald Health Sciences Centre certified **LEED® Gold**.

The **Hangar Fitness and Wellness Centre** completed to **LEED® Gold** standard.



Three Campus as a Living Laboratory Projects implemented: xeriscape landscaping around the The Hangar; assessment of energetic and environmental performance of vegetated roofs on campus; and measures to enhance the campus' water systems.

Power of You strategy established in partnership with FortisBC to encourage energy reduction through changes in behavior.

Kelowna Chamber of Commerce Business Excellence Awards: finalist for Green Innovator Award.

2014

Integrated a whole systems approach in the campus master planning process to optimize the campus' sustainability resources (energy, water, waste), facilities, infrastructure (above and below ground), and ecosystems planning.

This is a publication of the Okanagan Sustainability Office, Campus Planning and Development. For further information about our initiatives and projects, please contact us.

SUSTAINABILITY OFFICE
Campus Planning & Development
1138 Alumni Avenue, ADM 006, Kelowna, BC, V1V 1V7
www.sustain.ok.ubc.ca



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SUSTAINABILITY WALKING TOUR

Take a tour of UBC's Okanagan campus and see all of the great sustainable initiatives around you.

1 ADMINISTRATION

Main kitchen facilities support your sustainable food purchases—look for local, organic, fair-trade, humane, vegan or halal options. Supplying your own reusable beverage cup is encouraged with a discount on coffee or tea.

2 LIBRARY

Need a space on campus to study, research and collaborate in a sustainable way? Strengthen and enhance your overall student and university experience with time spent in innovative workspaces throughout the library.



3 SCIENCE

Thirsty? Keep hydrated while reducing plastic bottle waste. Bring a reusable water bottle and fill up with fresh, free, filtered water at the prototype WaterFillz Kiosk located in the main foyer. Additional kiosks can be found in all academic buildings across campus.

4 COURTYARD

Enjoy this central green space; walk west to the sustainable art installation “A Decomposition”—by Byron Johnston, Associate Professor Emeritus (Sculpture)—which depicts various stages of decomposition, incorporating cafeteria compost, sand, a term paper, peat moss and more.

5 ARTS

Looking to rejuvenate in the tropics? The Arts building contains an enclosed atrium with banana trees and tropical plants, fostering social sustainability as a popular, peaceful space for study and quiet contemplation.

6 NONIS SPORTS FIELD

Admire the green sports field year-round as you cheer on the Okanagan Heat varsity teams! Nonis Sports Field is characterized by permeated artificial turf that requires no watering, mowing, pesticide or fertilizer use.



7 THE HANGAR FITNESS & WELLNESS CENTRE

Looking to get fit in a sustainable facility? Crafted primarily with locally-sourced pine beetle-kill wood, “The Hangar” has carbon storing and capturing properties and is a prime example of innovative green building design.



8 REICHWALD HEALTH SCIENCES CENTRE (RHSC)

Certified LEED® Gold, RHSC has the largest vegetated roof on campus integrating indigenous plants and vegetation to keep the building cool in the summer and warm in the winter. The roof absorbs rain water, improves air quality, promotes biodiversity and reduces heat island effects.



9 ARTS & SCIENCES CENTRE (ASC)

ASC was awarded five Green Globes, the highest achievement for environmental and energy performance. Along with Fipke, our university is proud to have the first two campus buildings in the world to attain this distinction.



10 CHARLES E. FIPKE CENTRE FOR INNOVATIVE RESEARCH (FIPKE)

The first building in Canada to be awarded five Green Globes, Fipke was also the first new academic facility to use groundwater-sourced energy for heating and cooling, keeping campus carbon emissions low while ensuring comfort in the building.



11 UNIVERSITY CENTRE (UNC)

Looking to interact in a socially sustainable way? Visit UNC, a hub for student services and food outlets, situated in close proximity to academic facilities, residences and public transportation.



12 ENGINEERING, MANAGEMENT & EDUCATION (EME)

The largest building on campus has a vegetated roof and was sustainably designed to achieve five out of five points for LEED® Innovation in Design for clear-water utilization, education, green housekeeping and green power!



13 NICOLA STUDENT RESIDENCE

Solar panels on the roof of the largest student residence minimize energy consumption by preheating domestic hot water. Occupancy sensors and low-flow water fixtures minimize energy and water use.

14 PURCELL STUDENT RESIDENCE

Certified REAP Gold, Purcell's sustainable features include: a vegetated roof, solar panels for domestic hot water preheat and space-heating demands, and its own closed-loop geo-thermal exchange system. The bookable rooftop terrace includes a view of the Okanagan valley.



15 GEO-EXCHANGE DISTRICT ENERGY SYSTEM (DES)

The DES is used to heat legacy academic buildings and heat and cool new academic buildings. The system's use of existing energy from renewable aquifer-sourced ground heating significantly reduces natural gas consumption and GHG emissions.

16 TRANSPORTATION STATION

The Universal Bus Pass (U-Pass) program provides students with a low-cost, sustainable transportation option. Bus shelters have low-energy solar-powered lighting, just one of many actions our campus employs to conserve energy.



17 BIKE STATION

Store your eco-friendly mode of transportation in one of the sheltered bike racks or secure bike lockers. Use the mini bike-repair station between the bus loop racks to tune up your ride, and freshen up at one of the 22 end-of-trip facilities within nine buildings on campus.

18 ELECTRIC VEHICLE CHARGING STATION

Did you drive to campus in an electric car? Park your electric vehicle in one of six designated parking stalls in Lot E equipped with electric charging stations.



19 OGO CAR SHARE CO-OP

Don't own a vehicle, but need affordable access to a car occasionally? The Okanagan Car Share Co-op is on campus with a vehicle in its own designated parking stall in Lot E beside the EV charging station.

20 NATURE TRAILS

A growing network of walking trails fosters environmental and social sustainability on campus, allowing users to quickly connect with nature. Take a buddy and hit the trails for some fresh air and nature-inspired exercise!



21 LEARNING GARDEN

View the campus' model learning garden dedicated to promoting the principles of sustainable environmental practice, responsible stewardship of nature, interdisciplinary learning and knowledge. A fire pit near the learning garden offers a culturally-significant space demonstrating aspects of Okanagan (Syilx) knowledge and worldviews.



22 PINE BEETLE TRAPS

Pine beetle traps, in and around wooded areas throughout campus, contain a pheromone to entice the beetles out of the forest and into the traps, preventing the beetles' destructive impact on the surrounding woodlands.

23 BIGBELLY – SMART WASTE & RECYCLING SYSTEM

Bigbelly waste and recycling stations are solar-powered, two-component trash compactors. They reduce operational costs by up to 83%, with savings on pick up frequencies, labour, fuel, disposal and diversion costs, and CO₂ emissions.

24 HUNTER WIRELESS IRRIGATION SYSTEM

This innovative irrigation system is utilized throughout campus to ensure green spaces are watered efficiently and responsibly. The main monitoring system is located in RHSC and the virtual server is located in EME.

25 RETENTION POND

The storm water retention pond is an engineering feature designed to capture and divert rain water from the municipal storm water system. Over time, the pond has developed to support a wide range of ecosystem assets while acting as a filtration system for campus water run-off. Turtles, various bird species, small animals, and rich plant life characterize the healthy biodiversity of this site.



26 BIO-SWALE

Bio-swales established around new buildings convey storm water to the storm water retention pond, diverting it from the municipal storm water system. The bio-swales also help the campus adapt to more frequent and extreme precipitation events, an anticipated impact of climate change.



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