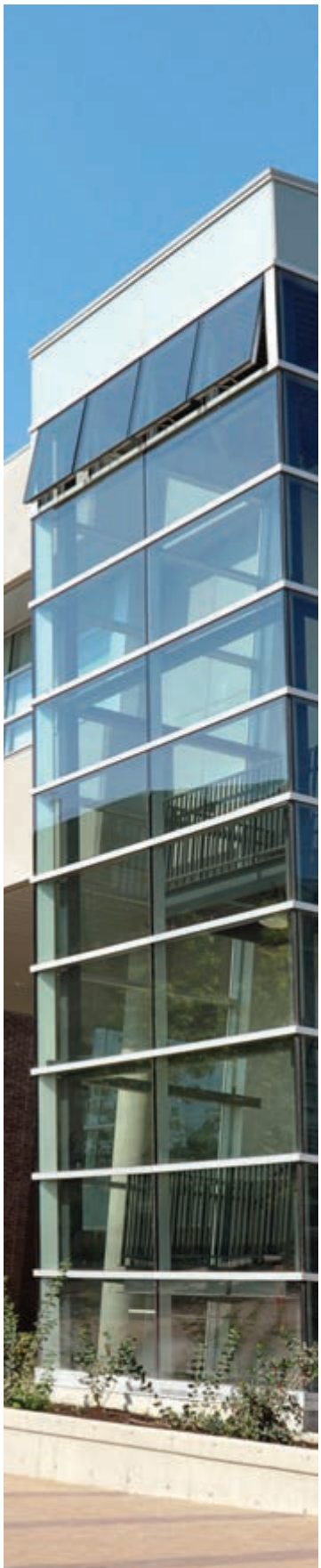
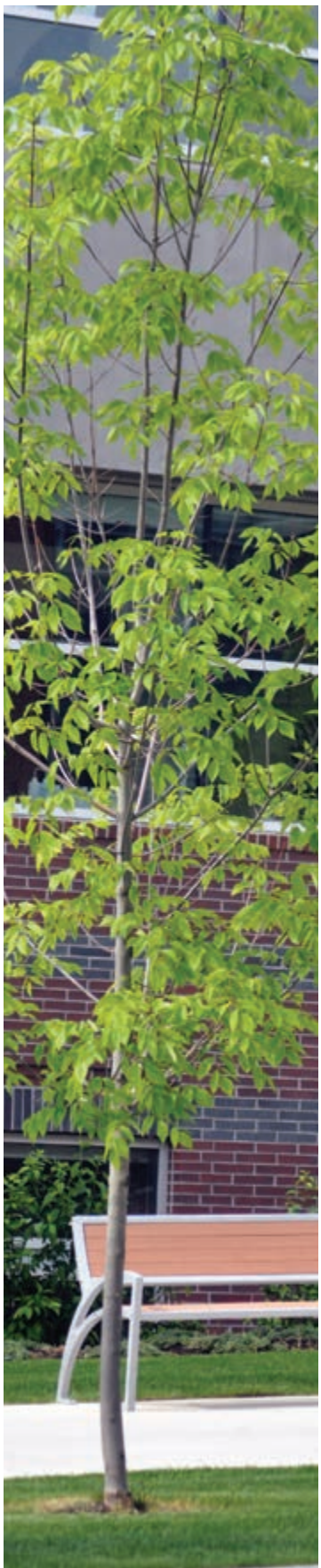
shift

SUSTAINABILITY INITIATIVES AT UBC'S OKANAGAN CAMPUS

a place of mind

THE UNIVERSITY OF BRITISH COLUMBIA | OKANAGAN SUSTAINABILITY OFFICE | JUNE 2010 | WWW.UBC.CA/OKANAGAN/SUSTAINABILITY





SUSTAINABILITY. FROM HERE.

Sustainability at the University of British Columbia is about much more than environmental stewardship. UBC's faculty, staff, students, and alumni understand that decisions made today—collectively and individually—have social, economic, and environmental consequences for tomorrow.

UBC knows that to meet society's needs, without compromising those of future generations, the University requires the best efforts of the brightest minds in every discipline. Locally and globally, UBC is proud to begin and advance conversations in order to positively contribute to the construction of a more civil society.

Already having emerged as a global sustainability leader, UBC continues to build its international reputation by taking the lead at home: in Vancouver and the Okanagan. In classrooms, in campus plans, in community development, and in partnerships, the UBC community aspires to create a world worthy of our children's children.

Professor Stephen J. Toope
President and Vice-Chancellor

We are pleased to present this report of what we at UBC's Okanagan campus are doing about sustainability from here. The interdisciplinary nature of our campus in Kelowna ensures that it is a natural hub for partnership and participation in the search for ideas and solutions that lead to a more sustainable society.

As a tight-knit university community we continuously strive to become more sustainable, to remain vigilant in our commitment to sustainability, and to foster a sense of pride and possibility in our students. We do this while they learn about their social, environmental, and economic responsibilities in both theory and practice.

From the Okanagan Sustainability Institute—which supports research relevant to issues of long-term sustainability within the Okanagan region and beyond—to infrastructure that sets the standard for environmental performance in Canada, UBC's Okanagan campus brings sustainability into every aspect of its operations.

By examining all of our actions through a lens of sustainability, we can make decisions today that ensure our own well-being and that of future generations.

Dr. Doug Owram
Deputy Vice Chancellor and Principal

From the outset, UBC's Okanagan campus has been dedicated to building a sustainable community. Sustainability is a common thread that runs through the great variety of components that make up our university campus: it is an integral element of our academic courses, research projects, and operations, and it is a guiding factor in the development of our state-of-the-art facilities.

Our campus' sustainability commitments span the entire spectrum of sustainability, addressing the environmental, social, economic, and cultural pillars and their impact on both our physical infrastructure and our learning and working environment.

Through a collaborative effort between the Okanagan Sustainability Institute and UBC's Okanagan Sustainability Office, we are integrating sustainability in our operations and academics to make the campus into a living laboratory.

We have the opportunity to serve as a model of sustainability by fully integrating and supporting sustainability in our academic programs, operations, and campus community to create a healthy, vibrant, and sustainable campus culture.

Dr. Alaa S. Abd-El-Aziz
Provost and Vice Principal
Academic and Research

CAMPUS COMMUNITY INVOLVEMENT

YOUR RIDE

The UniCycle program, a Campus Life Program supported by the Healthy Workplace Initiatives fund, is encouraging green transportation on and around campus and is helping to lower carbon emissions.

The campus community can borrow reclaimed and refurbished bicycles purchased from the local community for a quick and sustainable way to get around campus and for longer treks around the area.

YOUR OFFICE

With the help of Greening Your Office Kits, faculty and staff are taking green-minded actions to reduce energy use on campus. A key goal of the program is to educate the campus community on the benefits of taking action. If 10,000 computer workstations across B.C. were shut off overnight and on weekends, it could potentially cut their collective energy use by 50 per cent (BC Hydro). With approximately 2,000 workstations on campus, UBC's Okanagan campus can make a big impact through this simple action!

YOUR LAB

UBC's Okanagan campus is the first Canadian university to pilot the Fisher/Corning Lab Plastics Recycling Program, the campus' first revenue-generating sustainability project. The program encourages lab users to recycle non-contaminated plastics through financial incentives; each 63-litre bin filled with Fisher/Corning plastics earns $40 from the company.

YOUR WALK

Eight to 10 km of biking and walking trails on campus make up the Campus Trail System—an initiative that preserves the campus' natural environment and supports a vibrant, connected, and healthy campus community. The trails project is strongly supported by UBC's Okanagan campus Health and Wellness Office, which strives to help people achieve the healthiest and most enjoyable university experience possible.

WALK WITH US

Take a campus sustainability walking tour and visit a series of sustainable stations around campus where subject matter experts will discuss features that make our campus sustainable.

GREEN THREAD CAFE

60 per cent of fruit and 50 per cent of vegetables used in campus kitchens are sourced locally. All campus kitchen facilities are outfitted to collect compostable materials on a daily basis.

WATER STOP

Two energy-efficient PENTEK FreshPoint Ultrafiltration Systems or "water stops" allow people to fill up reusable bottles with purified water that still has naturally occurring beneficial minerals.

POND

A natural retention pond that collects and drains storm water runoff into the earth, diverting it from city sewers.

BUS STOP

Bus shelters have low-energy solar-powered lighting. Students have unlimited access to public transit in Kelowna through the U-Pass. 10 per cent of the U-Pass is subsidized by the university administration, the greatest subsidy by any college or university in the country.

LEARNING GARDEN

A model campus garden dedicated to promoting the principles of sustainable environmental practice, responsible stewardship of nature, interdisciplinary learning, and ecoliterate knowledge.

HUNTER WIRELESS

The technologically advanced irrigation system uses wireless rain, dew, and freeze sensors that shut the system down during weather changes to conserve water. The system also reports water line breaks and tracks water use.

Clockwise from left: Sarah Henderson; Jackie Podger; and Leanne Bilodeau

OKANAGAN SUSTAINABILITY OFFICE

"The mission of the Sustainability Office at UBC's Okanagan campus is to lead and facilitate the advancement of a culture of sustainability at the campus by building and supporting the growth of its social, cultural, ecological and economic sustainability."

From the beginning, UBC's Okanagan campus has been dedicated to creating a flexible, adaptable, and sustainable community—a goal articulated in the UBC Okanagan Academic Plan, the campus' primary guiding document.

"In its organization and processes, UBC Okanagan will strive always for agility, accountability, and sustainability," the plan says. "At every level, it means monitoring the campus' ecological, cultural, social and economic footprint—always striving to make the campus as beautiful as it is efficient."

Setting the over-arching vision for sustainability at UBC has been a recent key priority. Under the leadership of UBC's President, the President's Advisory Council on Sustainability (PAC-S) and the UBC Sustainability Academic Strategy (SAS) Working Group have developed UBC's Sustainability Academic Strategy, from which the Okanagan's recent sustainability initiatives unfold. These commitments are further reinforced by the campus' Strategic Research Plan and the Strategic Action Plan.

The institution's commitment to sustainability compelled the development of a dedicated office on UBC's Okanagan campus to help advance, lead, and deliver its sustainability vision.

The newly established Sustainability Office operates under the portfolio and guidance of the Associate Vice President, Administration and Finance, Jackie Podger.

"Our team's approach follows an integrated model that strives to incorporate and advance the environmental, economic, social, and cultural facets of sustainability," says Podger.

Working closely with Podger to drive the campus' sustainability mandate forward is Leanne Bilodeau, Director of Sustainability Operations, who leads the new office. Bilodeau has been an integral part of implementing sustainable practices from the start—she was a member of the SAS working group and worked closely with UBC's Okanagan Sustainability Working Group to develop the campus' sustainability baselines across academic and operational sectors.

The office is focused on building and demonstrating institutional practices that promote sustainability, as well as tracking and reporting on the campus' progress—key functions that will contribute to ensuring the campus meets the provincial government's mandates for carbon neutral operations in 2010.

Beyond its administrative role, the team is passionate about acting as a facilitator, enabler, and supporter of others in the campus community to help build sustainability initiatives from the ground up.

"We believe sustainability can be advanced through a distributive leadership approach," says Bilodeau. "We have a lot of expertise on campus and everyone has a leadership role to play in a collective effort to achieve shared goals."

Bilodeau and her colleagues regularly collaborate with faculty, staff, and students—an essential process, as success in their work depends on stakeholder consultation and support.

"Working with the AVP Administration and Finance, we engaged key groups on campus, including Facilities, Supply Management, IT Services, Health, Safety and Environment, and Finance, early on in the process. They were keen to get involved in projects and they've been incredibly supportive. Involving stakeholders and joining efforts is an important step in advancing and achieving our sustainability vision."

Looking ahead, the office will continue to take a comprehensive and consultative approach in implementing initiatives that bring together sustainability efforts from both the operations and academic perspectives.

STUDENTS WEIGH-IN

"People are concerned about sustainability and want to learn more about what they can do. Our job is to raise awareness about the steps everyone can take to lead a more sustainable life."

When Mallory Hewlko took on a summer job tree planting she may have been looking for a change of scenery, but ended up with a change of lifestyle. Her summer work experience dramatically changed how Mallory thought—and acted—on a daily basis.

"We had the entire summer to live without anything," she recalls. "We were living in tents and relying on our surroundings for our daily needs. I started reading a book on environmental justice, and it really hit home."

Hewlko is a student ambassador for sustainability, invoking change as she engages the student body in sustainable initiatives.

Hewlko's passions for sustainability landed her the goBEYOND Campus Coordinator role on UBC's Okanagan campus. goBEYOND, formed by the Sierra Youth Coalition (SYC), is a project that focuses on climate action at British Columbia colleges and universities. The program has engaged over 200 students on campus in awareness and education activities to reduce carbon emissions.

"Students are excited and concerned about sustainability, but they don't always know how to take action, or they don't think it is feasible," says Hewlko. "Sustainability is often associated with being expensive or inconvenient. I try and set an example of how behavioural changes are possible and can have big impacts."

Last year Hewlko led fellow students on a carbon diet. Nearly 100 students participated in the year-long challenge to reduce their carbon footprint by 5,000 lbs by incorporating sustainable practices in their daily lives. The largest changes were in transportation and food habits, alongside a major shift in attitude.

Hewlko didn't lose the target 5,000 lbs because, essentially, she's already at her ideal weight.

"I had a pretty low carbon footprint to begin with," she explains. "I've been taking actions to reduce my carbon footprint for a long time. Now I'm trying to lead by example, at school and at home."

The SYC goes beyond motivating students at individual campuses—it creates a network of students in universities in Canada. Monthly phone calls and "Feedback Friday" email exchanges keep sustainability-minded students connected across the country.

"It's all students and we have a collaboration network, we bounce ideas off of and learn from each other," says Hewlko.

She's an active member of the campus' student sustainability group, which provides a forum for students to pitch sustainability initiatives and get involved. Students gather monthly to discuss project ideas—from filling the campus courtyard with empty water bottles to raise awareness, to conducting campus waste audits and reports.

Hewlko sees herself as both a leader and a peer. She is a "connector" bridging the gap that can exist between faculty, staff, and students on campus.

"Students can relate to me a lot easier," she says. "I get the off-hand remarks that might not get to a professor. Being a student, I am more accessible and I can then share their ideas with other university bodies."

Hewlko enjoys seeing the intersections within the university and being able to work with a variety of groups.

"It's nice to bridge borders. I like being that connector, the person students can come to with questions and concerns, particularly when they don't feel comfortable or don't know where to go."


Health o meter


BRUTE
UBC

COMPOST KING

"To me this isn't a job, this is from the heart."

Recycling is always on Allan King's mind, and King is always on the go. He has been on campus for 30 years—since the inception of the original institution when he was hired to oversee the construction of the first building.

King personally is behind many of the sustainable initiatives on campus, and he was thinking about sustainability long before any formal policies or programs were initiated. King has applied his personal commitment to sustainability to his role in the facilities office.

"In recycling you can never be satisfied that it is in place and complete. It's an area that is constantly evolving," he says. As recycling evolves, so does King's role. He's a guy with many connections, and if he doesn't have the right one, he'll find it.

King takes pride in finding sustainable solutions to the challenges of a busy and growing university campus. Take, for example, the large amount of unrecyclable Styrofoam on campus. It is now being collected by a local inventor who is using the material in place of crushed gravel in building foundations or underground services. And what about the many used wooden pallets on campus? An entrepreneur is using them to build lawn furniture.

King claps his hands in acknowledgement of a job well done after each story he tells—the connection is made, the waste is reduced, and he can move on to the next solution.

King and his colleagues have taken pride in building a sustainable campus and are striving to make it easy for the whole campus community to participate. UBC's Okanagan campus seeks to be the greenest campus in Canada, which is no small undertaking. A task of this magnitude requires the participation and dedication of the entire campus community.

"Everyone has to be on board and be conscious of what they do with waste—is it compostable, recyclable, or refundable?" asks King. "It takes all of us to pitch in to be able to make it work."

Waste is an inevitable part of human activity and with landfill capacity diminishing, waste management is becoming an increasingly compelling issue.

In 2008, the campus conducted a waste audit, collecting a day's waste from seven buildings. The results necessitated a call for action: 42 per cent of the waste collected was recyclable material, and 30 per cent was compostable material.

The campus responded by implementing a composting program: breaking down organic materials to produce a nutrient-filled soil amendment.

Every kitchen facility on campus now has 20-gallon bins to collect an impressive 200 lbs of compostable materials daily. The contents are fed into a large 'Earth Tub,' which composts 150 lbs of organic waste per day and reduces the volume of the material by 75 per cent.

It's very much a hands-on process—each day King takes the Earth Tub "for a walk," rotating the cover's long handle, churning the large stainless steel auger through the compost inside. After two full rotations, the entire contents have been mixed. It's an exacting process that King watches over closely.

"Just like cooking, the right ingredients, in this case food scraps and bulking agents, and temperature have to be maintained," he says.

Once the Earth Tub's 4,000-lb capacity is reached, the high-quality compost inside will be used to enhance soil quality on the grounds, keeping a substantial amount of organic waste out of landfills and saving money on disposal costs.

COMMUNITIES OF WINE

"The Okanagan is blessed to have sunny skies, beautiful lakes, and bountiful vineyards. When the wine industry of the Okanagan is sustainable and prosperous, it can make the local communities resilient through changing times."



Associate Professor of Geography Donna Senese has researched wine locally, nationally, and internationally from the perspective of agritourism: value-added agriculture that draws tourists to agricultural lands, often benefiting the agricultural economy and sustaining rural places ecologically, culturally, and socially.

Although the conversion of fruit tree orchards to vineyards has raised some concern in the Okanagan region, the wine industry has helped buffer agricultural land from non-agricultural development. And vineyards attract visitors and migrants—people choose to visit and live in wine-making agricultural areas for the area's image, tradition, and lifestyle.

Senese's research took her to Italy, where she worked with *Città del Vino* (cities of wine). Here, Senese found her inspiration.

"In the wine regions of Italy there is reverence for the land," she says. "One thing I came away with is the important role the wine industry can play in sustaining the natural and cultural worlds of rural agricultural communities."

The image of the Okanagan Valley has changed over the last 10 years, much to the credit of the wine industry, which has helped keep tourism afloat during tough economic times.

"We used to be peaches and beaches," says Senese. "The changing tourism demographic wasn't satisfied with this image alone. Wine has a direct connection to culture and nature, helping the tourism industry be resilient by addressing the environmental and cultural elements that many tourists seek."

The wine industry provides a unique context that enables the agricultural, arts, and cultural industries to network and support each other, a connection that hasn't been possible through any other tourism niche.

"The key to the wine industry in the Okanagan is that in many ways it has enabled the community to float and adjust to change, whether it be of economic, political, or environmental nature," Senese notes.

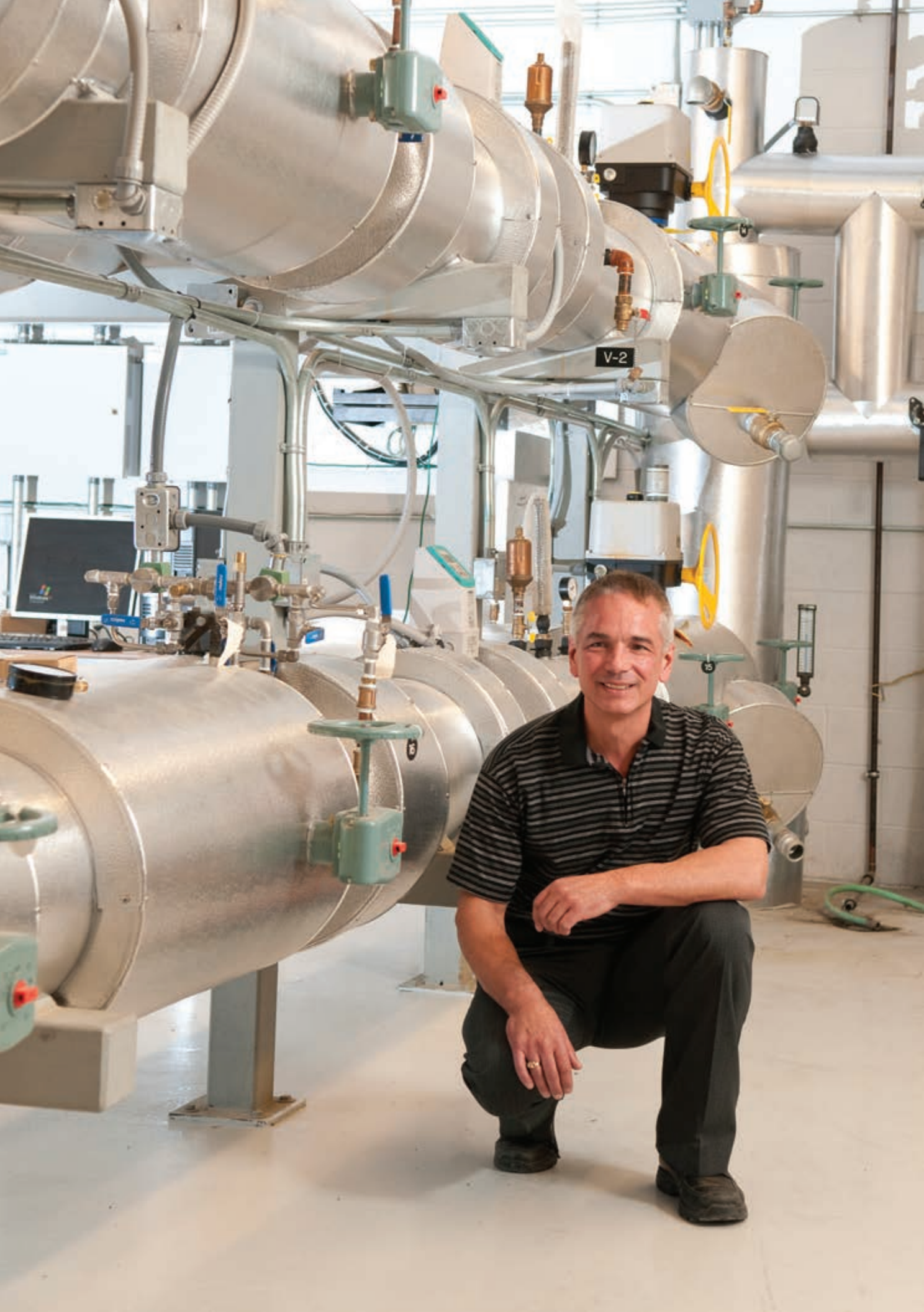
Wine production tends to foster a sense of community: it has been historically associated with slow food, tradition, family, and friends. In many Mediterranean wine regions, communities were often established based on the location of wine production, wine markets, and transportation networks connecting them.

Wine-led amenity migration is a concept where people move to an area because of a strong attraction to the lifestyle and sense of family, culture, and tradition embedded in the images of wine regions.

"There are definitely patterns of mobility in the valley that have been influenced by the growth of the wine industry here," says Senese. "Social sustainability has strong ties to the quality of life available for the diversity of people in a community. It has a lot to do with community and the sense of belonging to it, or a 'sense of place.'"

This sense of attachment to place is central to community resilience.

"When people have a sense of place, they tend to work and live like they want the place to last. I was so fascinated with what the Italians call a two-way reverence for the communities of wine and wines of the community. Understanding the close connection the wine industry can play in sustaining communities and vice versa was something I wanted to bring home."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FROM THE GROUND UP

> "There has been a shift from seeing things from a financial benefit, to taking action because we want to be here tomorrow and have resources available for ourselves, our community, and our kids."

Facilities staff are the "nuts and bolts" of sustainability at UBC's Okanagan campus, and Roger Bizzotto, Facilities Manager, has been a key leader in developing the campus' geo-exchange system.

It all begins with an underground source of water, the foundation of the groundwater technology that is used to heat and cool buildings on campus, with a potential energy cost savings of $100,000 a year.

"We have a unique advantage on campus in that we are sitting on a large aquifer—a mixture of sands, gravels, silts, and organics suspended in water 60 metres below ground. Approximately 900 metres wide by 3,500 metres long, and 70 metres thick, it spans roughly two-thirds of the campus."

A water-in, water-out concept makes it all work. The water is extracted from the ground, put through heat exchangers in the buildings, and returned back to the earth. From the heat exchangers, secondary building water is circulated through water source heat pumps powered by a 95 per cent renewable electrical energy source. The system functions at 300 per cent efficiency: for every kilowatt of energy used, three are gained.

Next, the water undergoes a refrigeration process, where heat is either injected into or extracted from the water. Not only is the university fortunate to have this natural resource right beneath the campus, but it is also at a very convenient temperature.

In the summer, the in-ground water temperature hovers around 10.5°C (50°F), the exact temperature required for cooling buildings. Without this convenient coincidence, the water temperature would need to be mechanically adjusted. In the winter, the water is compressed, raising the temperature to about 54°C (130°F) to heat buildings.

"All buildings on campus are now equipped with electric meters and gas sub-meters, which should provide future indications of energy savings on campus," says Bizzotto. "Early statistics indicate that future savings will be substantial."

The Charles E. Fipke Centre for Innovative Research, which houses science labs, had a virtually non-existent natural gas and hot water bill this February. At a mere $750 for a building that houses activities typically considered inefficient, the numbers show a great advantage, especially when compared to a fine arts building running on a conventional gas-fired system, with a bill of $6,000 for the same period.

It isn't all about dollars and cents though.

"In the past we generally looked at energy-savings from a dollar perspective," says Bizzotto. "There has been a shift from seeing things from a financial benefit, to taking action because we want to be here tomorrow and have resources available for ourselves, our community, and our kids. We are realizing that not all resources are going to be renewable."

Two buildings on campus are currently using the geothermal system, with plans underway to expand to a campus-wide system.

"The net energy that will be extracted for the campus is estimated to be about 14,200 gigajoules," Bozzotto says. "Putting this into perspective, the energy extracted would heat approximately 1,500 average homes."

Upon completion, the geothermal project at UBC's Okanagan campus is expected to be the largest university geo-exchange system in North America.

GETTING OUT OF NEUTRAL: HELPING B.C. COPE WITH CLIMATE CHANGE

"Taking the climate change science seriously implies a major transformation in how we live, work, and play within a generation, and therefore challenges the core assumptions upon which we have built our economy and our society."

'Climate Justice' may be the new catch phrase for the century. A fitting term, given that climate change is the social problem of the century. It refers to climate change policy and social policy integrated with social justice. Kenneth I. Carlaw, Associate Professor of Economics, is part of a team that is bringing this concept to the forefront of public policy, and equally important, public thought.

Carlaw is a leader in a Social Sciences and Humanities Research Council-funded project that looks at several areas of concern for British Columbia's social and economic policy. Four streams make up the project: Carbon Pricing, Community Resilience, Communication, and Industrial and Employment Strategies, the last being Carlaw's area of expertise.

All four streams are intertwined and, when researched together, the result is an inclusive, systematic approach to climate change.

Climate change presents lots of uncertainty about perspective, time, and scope of required social change. As a result, most governments are currently reacting to climate change in a piecemeal and ad hoc way, an approach that Carlaw seeks to change.

"If you really want to have impact, then you have to look at this issue as it is: a complicated, systemic issue. You can't solve it by simply changing a price. By understanding the nature of the problem holistically, you can have a much greater impact."

The research team seeks to convince the B.C. Government to approach climate change in a way that is inclusive of social issues, presenting policy and project recommendations based on their findings.

Carlaw is determining the feasibility and benefits of "green" jobs— jobs that are ecologically neutral in terms of greenhouse gas (GHG) emissions—by examining B.C.'s industrial carbon footprint and considering the potential future industrial composition of the province.

"We are doing a lot of methodological thinking and soul searching about the concept of green jobs. The greener we produce, the greener the jobs, and the greener we are in terms of the way we live, keeping in mind the social and economic costs of going green," says Carlaw.

The complexity of the issue requires a thoughtful approach that will produce a coherent strategy integrating production and consumption.

"There is a lot of passion for the subject," he says. "You have many different experts coming together to discuss one very complex topic. All of these different opinions may be tough to manage, but it is inclusive."

And, although the project advocates for a systemic and comprehensive policy on climate change, people are at the heart of the matter.

"If it's not about people there is no point," says Carlaw. "Climate change is a people problem: ultimately people are the producers and the consumers that have created the GHG associated with climate change. People have to understand that everything is connected locally, regionally, and globally when it comes to this issue."

Although climate change is commonly associated with mitigation, Carlaw sees the problem more broadly as one of social transition and reaction.

For the most part, climate change is an accepted fact. If this is the case, then what actions can we take on an individual and collective level?

Individually, we need to understand how we can change behaviours to reduce our contribution to the problem, he says.

"Climate change will change the way many people live, regardless of where they are or what they do. The expectation is that whole communities will have to dissolve and re-emerge somewhere else. From a socially sustainable perspective, we need to consider how we will help and interact with people who are affected and require support."

Ed Neeland and Shelley Kayfish

MORE RESEARCH SMALLER FOOTPRINT

"It's about more eyes, more ears, and more knowledge. By applying the expertise of our researchers, we are leveraging our ability to reduce impact."

Shelley Kayfish has made a career of pollution prevention. A former environmental consultant, Kayfish is manager of Health, Safety and Environment (HSE) for the Okanagan campus, and has engaged the campus in a variety of innovative programs that build gradually, like building blocks, and encourage the conscientious use of best practices.

It's an approach that works. Take, for example, one of the first initiatives her office introduced: a program for safely disposing of contaminated waste. Laboratory managers supported it, and the program demonstrated how faculty and staff are ready and willing to do all the right things when it comes to preventing pollution.

That, says Kayfish, was clear encouragement to develop further initiatives.

"Now that our foundational pollution prevention programs are in place, our goal is to drive down both cost and environmental impact," says Kayfish. "Next year we want to see our hazardous volumes at a stable level and decrease in future years. This year our pollution prevention initiatives are greater than any previous year—by threefold."

According to Kayfish, awareness and the desire to act responsibly are on the rise.

"When people know the options they are very receptive to jump on board," she says. "We have a responsible culture, one that is looking for direction."

UBC's Green Research Program is reducing the environmental impact of research at UBC's Okanagan campus. Projects to support this mandate are well underway, ranging from a pollution prevention lab manual that encourages researchers to consider the environment by instituting sustainable measures, to regular pollution prevention reviews for labs in addition to their already mandatory lab safety audits.

"The key is to remain flexible and make sure the projects we choose meet the needs of our community," Kayfish says, adding that her office can tailor recommendations to the specific needs of any particular lab.

"Next year, we will be providing individual lab users with environmental impact statements in terms of both the amount of chemical and biological wastes we collected and the associated costs," she says. Kayfish will also follow up with suggestions on reducing impact.

Along with her HSE colleagues, Kayfish is taking pollution prevention online with initiatives such as a 'Virtual Green Lab.' Currently under development, this web-based resource showcases the ideal lab and suggests ways researchers can reduce their ecological footprint. HSE's waste tracking system will also become electronic, allowing for efficient data management and reporting.

With numerous ongoing projects, Kayfish sought input from faculty experts and formed the UBC Okanagan Green Research Advisory Committee.

The committee, she says, is as much about creating a vision of what's needed as it is about applying expertise.

"We talk about grand ideas," says Kayfish, "and then use the multi-disciplinary experience of the group to look at the feasibility and benefits."

The committee, which will be expanded to represent all relevant faculties, includes members Stephen McNeil, Ed Neeland, Alex Lane, Rosemary Garner, Judith Moldovan, and James Bailey.

The group collaboratively guided undergraduate chemistry student Madeline Kirk through one of the campus' first pollution prevention initiatives. Kirk was hired to review the feasibility of small-scale distillation of solvents in teaching and research laboratories.

"It's a great learning experience and a mutually beneficial project in terms of furthering our mandate as an operational unit and producing learning opportunities for students," Kayfish notes.

The initiative was supported by the Fisher Sustainability Fund, a Fisher Scientific Inc. program to support green research that can enhance an environmentally responsible culture in UBC research laboratories.

Kayfish describes building such a campus culture as a thoughtful process that is unique to the campus, and that requires collaboration across the research community.

"We work to find creative ways to conduct green research in ways that fit our campus," she says. "It's important to stay connected to the campus community."

A COMMUNITY CONNECTION

"Many students have shown great interest in what our campus is doing. This subtheme represents students' desire to be directly engaged with sustainable initiatives in the UBC Okanagan community."

Mary Stockdale wears two hats these days: she's a volunteer community activist for sustainability and an Adjunct Professor in the Irving K. Barber School of Arts and Sciences.

Stockdale's roles are far from separate—she's bringing the community into her classroom and her students into the community, all in an effort to engage students in the material they are learning and to serve the community both on and off campus.

"It's like rain on parched land," she says. "There are so many things community groups are grateful to get help with. Through community-based research students can help support community initiatives. In turn, the community groups provide relevant case studies and inspiration for students. It is really a great partnership."

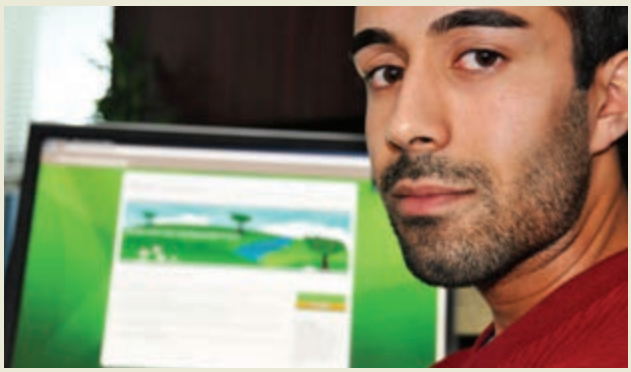
Stockdale's courses, Development of Environmental Thought and Community Food Security in the Okanagan, have students thinking creatively and taking action on sustainability. Students in these courses have a fair amount of leeway to explore the topic and are encouraged to experiment.

Students are thrilled to have the opportunity to make a real impact. Although Wariach was only asked to research the idea, he is taking it considerably further, using funds from his own pocket to develop the website. Wariach plans to expand the initially Kelowna-focused site nationally.

Wariach's fellow students are leading other experiments in sustainability, from promoting a community garden on campus, a project of third year student Kathleen Taylor, to developing information resources, as in the case of fourth-year student Tanya Rumak, who put together a green guidebook for new students: "Living la Vida Verde," orienting students towards sustainable food options.

A key theme Stockdale addresses is the role universities play in the realm of sustainability.

"It's important to gain insight into students' perceptions of sustainability on campus," she says. "Many students have shown great interest in what our campus is doing. This subtheme represents students' desire to be directly engaged with sustainable initiatives in the UBC Okanagan community."



Fourth-year geography student Raja Wariach created a gleaning website to connect people in need of food with farmers and orchardists with excess produce.

"This free service allows food producers, such as a commercial orchardist or even a backyard gardener, to post online ads about their excess food and directly give it to people in need," says Wariach.

SEEDS

(Social, Ecological, Economic Development Studies)

The creativity and enthusiasm of students, the experience and knowledge of faculty, and the expertise of staff are integrated into an academic program that seeks to advance sustainability on campus and in the community. Through this unique program undergraduate and graduate students have the opportunity to participate in research through hands-on projects that address sustainability issues and challenges.

FOR MORE INFORMATION, EMAIL:
okanagan.sustainability@ubc.ca

Cockwise from top left: Tanya Rumak; Raja Wariach; Mary Stockdale; and Kathleen Taylor

BUILDING SUSTAINABLY

Building a campus is equivalent to building a community. And, as the campus develops, it becomes an increasingly valuable resource that will serve many other communities in turn.

UBC's Okanagan campus has undergone major growth, tripling in size from 0.5 million square feet to a vast 1.5 million in just five years.

At the core of this growth has been a commitment to responsible and sustainable expansion. Any unsustainable features or practices in original infrastructure are being redressed and all new buildings have energy emissions reduction targets of 40 to 50 per cent to attain LEED® Gold certification (Leadership in Energy and Environmental Design).

LEED promotes a whole-building approach to sustainability by recognizing performance in five key areas of human and environmental health. UBC's Okanagan campus is excelling in all five areas, some highlights include:

Aerial shots of campus Above: 2004; Below: 2010

1. SUSTAINABLE SITE DEVELOPMENT

Where possible, the selection of a building's location and orientation prioritizes the use of the external environment for temperature control, ensuring minimal solar gain in summer and low heat loss in winter. During the construction process measures are also taken to control erosion and mitigate environmental impacts.

2. WATER EFFICIENCY

Water conservation is a high priority on campus: water conserving features of many buildings include dual flush toilets and ultra low-flow bathroom fixtures, reducing water consumption by 30 per cent or more when compared to conventional systems.

3. ENERGY EFFICIENCY

Plans are well underway to outfit and connect all buildings with the campus' geo-exchange system. Many classrooms and labs are equipped with occupancy sensors for lighting and ventilation to conserve energy when rooms are unoccupied. Carbon dioxide (CO2) sensors are also in place to increase or decrease the amount of fresh air intake, as necessary.

4. MATERIALS SELECTION

Many building materials, which are manufactured locally whenever possible, have high recycled content, reducing the embodied energy in the building and limiting the demand for raw materials. Highly durable materials are used in order to minimize future maintenance and replacement. Construction crews are championing waste reduction, ensuring at least 75 per cent of waste material is diverted from the landfill.

5. INDOOR ENVIRONMENTAL QUALITY

Interior finishes, from paint to carpets, are selected for their low VOC (Volatile Organic Compound) levels to preserve the indoor air quality. In many buildings occupants can easily adjust the conditions of their environment with access to operable windows, lighting, and temperature controls.

Although much of the focus on sustainable energy comes from a physical infrastructure perspective, the social energy of the space is equally important.

Buildings are designed to foster a sense of community, including four newly established collegia spaces, which offer students a comforting and comfortable place to gather, interact, and socialize with each other. Plans are in place to expand this program to include faculty and staff spaces.

ENVISIONING A SUSTAINABLE FUTURE

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.

The campus strategizes to integrate operational and academic sustainability to create "a living laboratory" that will encourage thought, innovation, and solutions to sustainability challenges of the future.

UBC's Okanagan campus will realize this vision through the following commitments:

- Create a campus culture that advances, demonstrates, and integrates all facets of sustainability across its academics and operations.
- Develop a dynamic and resilient learning and working environment by fostering sustainability in teaching, learning, and research across all disciplines and by engaging students, faculty, and staff to support all aspects of sustainability.
- Enable collaborative links among academic and operational sectors of the campus to build and strengthen a sense of community and to develop the "campus as a living laboratory".
- Establish clear goals and targets for sustainability performance across all sectors of the campus and develop monitoring and reporting protocols to track and report on performance on an annual basis.

SUSTAINABILITY NOTES

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ACKNOWLEDGEMENTS

Thank you to the many faculty and staff who contributed to and participated in this inaugural sustainability publication for UBC's Okanagan campus. A special thank you to Summerhill Pyramid Winery in Kelowna for allowing us to shoot on location.

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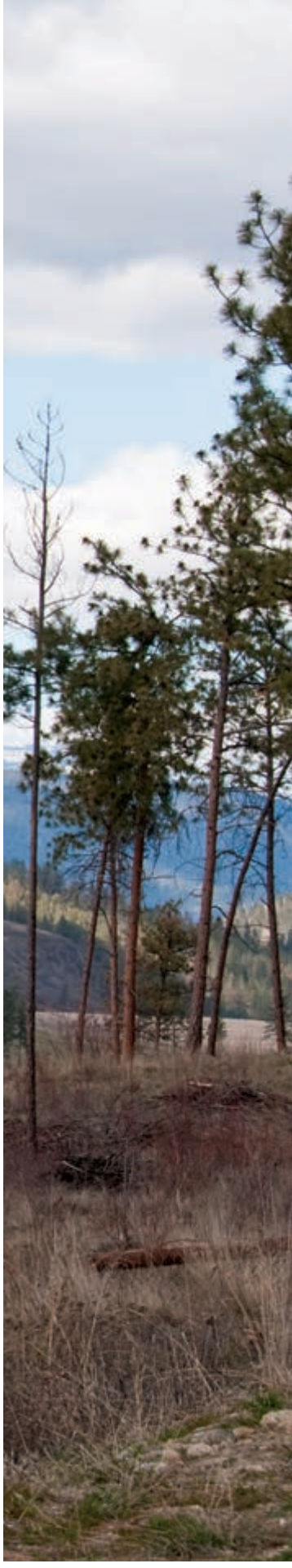

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