VOLUME 9
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Cardinal Green

The Sustainable Stanford Quarterly Newsletter

SUSTAINABLE STANFORD

In this issue...

Primary author and submissions:
Jiffy Vermylen -
jiffy.vermylen@stanford.edu

Design: Terri Fitzmaurice -
terri.fitzmaurice@stanford.edu

http://sustainable.stanford.edu

In This Fall Issue

Sustainability activities did not skip a beat while classes were out. Our office and sustainability professionals across campus invested in external evaluations and resource updates in preparation for the 2010-2011 academic year. We submitted the 120-question Sustainable Endowments Institute survey, ranked 5th in the Sierra Magazine survey, and are preparing for the publication of *Sustainability: A Year in Review 2009-2010*. In a reporting-only capacity, we joined the AASHE STARS program to study and shape the national sustainability evaluation criteria for major research institutions going forward.

This newsletter highlights many long-term infrastructural and behavioral initiatives that came to fruition over the summer. The opening of the first regional heat exchange station signifies the iniital implementation phase of the 2009 Energy and Climate Plan. Building-level behavioral programs continue to be adopted by different departments across campus. Most visibly, five new high performance buildings opened, including the new Science and Engineering Quad facilities. These buildings embody sustainable performance with an aesthetic that continues to make Stanford a place of inspiration.

Enjoy this issue and, as always, send us your feedback. We look forward to working together in 2010-2011. Visit our website for on-going sustainability news.

Fahmida Ahmed, Office of Sustainability

First Regional Heat Exchange Station Opens

A major infrastructural improvement outlined in the 2009 Energy and Climate Plan is the conversion of Stanford's existing steam piping to a hot water distribution system. Steam piping is both difficult and dangerous to maintain, and its documented inefficiencies—despite insulation, approximately 12% of heat is lost through pipe to ground contact during transmission—render the hot water system an attractive alternative. As a comparison, engineers estimate only a 3% or 4% line loss in hot water piping. Coupled with the eventual heat recovery scheme designed for the Central Energy Facility,

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Dean Murray, Associate Director, Thermal Energy Distribution, explains the heat exchange station

these improvements will enable Stanford to reduce its greenhouse gas emissions beyond those established through California's landmark AB32 legislation.

The conversion from steam to hot water distribution will be incremental, but implementation is underway. The first physical evidence of this transformation appeared in August at the end of Memorial Way. Nestled behind the Graduate School of Business (GSB) South Building and Memorial Church, the first regional heat exchange station stands ready for action. It will serve about a dozen nearby structures, including athletic facilities, the existing GSB buildings, and the new Knight Management Center. The station converts steam piped from the cogeneration plant to heating hot water and distributes that directly to buildings in the service area. The smaller, local heat exchangers in each building mechanical room are being replaced with equipment suited for hot water, a procedure carefully designed to minimize impact to building occupants. The aggregate energy use in the service area is expected to reduce almost immediately upon system activation, demonstrating the advantage of such a conversion on a campus-wide scale.

Stanford's first regional heat exchange station

As implementation of the Energy and Climate plan progresses, a network of regional heat exchange stations will open across campus and subsequent building level conversions will continue, ultimately setting the stage for transformation of the cogeneration plant to a "regeneration" facility with heat recovery. The full text of the 2009 Energy and Climate Plan is publically available online. For more information, please contact Fahmida Ahmed in the Office of Sustainability.

Sustainability on the Farm Tours Offered for NSO & Reunion Homecoming 2010

Inaugurated during Reunion Homecoming 2009, Sustainability on the Farm Tours will be offered during New Student Orientation and Reunion Homecoming 2010. The 90 minute bus tours focus on operations and provide a flavor of sustainable practices in action. Participants are escorted around campus in one of the new hybrid Marguerite buses. Presentations related to each operational area are provided by staff members both on the bus and on-site via a quick walk. Topics include water, waste and recycling, transportation demand management, energy, sustainable landscaping, and a shorter version of the Y2E2 building tour. Tours are scheduled during major campus events and upon special request. To learn more about the tours, please contact Elsa Baez.

Knight Management Center Nears Completion

The new home for the Graduate School of Business, the Knight Management Center, is nearing completion and remains on track for a LEED® Platinum certification.

In November 2009, the School learned from the U.S. Green Building Council that 37 points (of the 52 needed for the Platinum ranking) had been approved from the team's initial submittal. When construction is complete, the team will submit the remaining credits for approval.

Among the points achieved were those related to energy performance and on-site renewable energy—each of which contributes to the complex's 45% reduction in energy consumption. In addition, the design team has reduced potable water use by 80% compared to consumption in similar buildings. The Knight Center construction will finish in Spring 2011.

Stanford Ranks 5th on Sierra Magazine Cool Schools Survey

Sierra Magazine released the 2010 Cool Schools sustainability rating, and Stanford ranked 5th out of 162 schools surveyed. This represents an excellent overall improvement from Stanford's 26th place ranking last year (out of 135 schools). Stanford earned perfect scores in the Waste, Investment, and Other Initiatives categories, and performed strongly in the Academics, Transportation, Purchasing, and Administration categories. Accomplishments highlighted in this year's survey included the release of Stanford's 2009 Energy and Climate Plan, as well as the CEE/ES 109 Green Buildings & Behavior course.

New High Performance Buildings Open Across Campus

by the Department of Project Management

Lorry I. Lokey Stem Cell Research Building (SIM1)

- Increased HVAC efficiency by segregating laboratory and other occupancy types
- Sloped ceilings in labs for increased daylighting and installed solar photo cells for lighting control
- Vivarium includes reusable animal cages, eliminating cage wash equipment and avoiding the use of approximately 9 million gallons of water annually
- Took advantage of local climate to eliminate relative humidity controls from air handling equipment and the vivarium rooms

Olmsted Terrace Faculty Homes

- ENERGY STAR building envelope (exceeding State of California energy standards by at least 15%)
- ENERGY STAR appliance package and low-flow toilets
- Lake water irrigation with satellite control
- Shade trees planted to reduce heat gain

Li Ka Shing Center for Learning and Knowledge (LKSC)

- Building uses recycled water for flushing toilets and urinals
- Envelope includes high performance glazing, sun shades, and a reflective roofing surface
- HVAC system uses chilled beams and displacement ventilation
- 95% of construction and demolition debris diverted from landfill

Stauffer Building I Project Wins 2010 ASHRAE Technology Award Honorable Mention

The laboratory VAV conversion in the Stauffer I building recently won the 2010 Honorable Mention ASHRAE Technology Award in the existing institutional building category. The award was made in recognition of outstanding achievement in the design and operation of energy-efficient buildings and specifically recognizes the outstanding results of Stanford's Whole Building Retrofit Project in Stauffer which saved more than $228,000 in FY2009. A partial list of the many modifications includes replacing pneumatic zone controls with direct digital controls, converting constant volume zones to variable volume zones, and adding occupancy sensors at each fume hood to control face velocity. ASHRAE Journal plans to feature the project in its September issue.

Construction Milestone: SEQ Opens to Pedestrians

The construction fencing came down quietly in June, but since then the buzz created by the opening of SEQ to pedestrian traffic has been anything but quiet. An outdoor space identical in size to the Main Quad, SEQ adapts the aesthetic of Stanford's historic structures to the modern era. Although it will be two years before the fourth building formally completes SEQ, the Huang Engineering Center (HEC) and the Center for Nanoscale Science and Engineering (Nano) recently received certificates of occupancy. Tenant fit-up is ongoing and both buildings expect to be fully operational by the end of 2010.

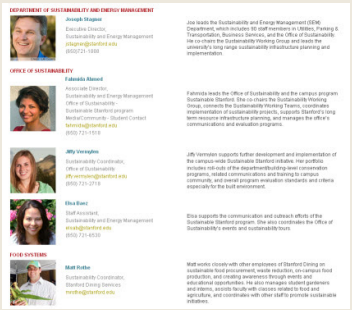
Building on the success of their predecessor, Y2E2, both HEC and Nano epitomize high performance design and construction. Performance models suggest that aggregate energy use in HEC and Nano, including plug loads, will be 42% and 37% less than standard buildings, respectively. Both buildings have an enhanced building envelope with high-performance windows, make extensive use of daylight and photocell technology to control lighting when sufficient daylight is available, employ a combination of natural ventilation and active chilled beams, include renewable materials in architectural woodwork and furniture, and use the university's recycled water system for toilets and urinals. Each building will have a 30kW DC solar photovoltaic installation in operation by the end of this year. To complete the HEC auditorium, more than 316 seats were salvaged from the demolition of Kresge Auditorium, refurbished, and redeployed.

Make it a point to walk through SEQ this fall. Grab a sandwich after the eagerly anticipated opening of Ike's Place. Sit amid the seasoned oak trees diligently protected throughout construction and admire the latest demonstration of Stanford's commitment to sustainability.

The existing Y2E2 tour and docent program will be expanded to include the new additions to SEQ. For more information, contact Fahmida Ahmed in the Office of Sustainability.

Sustainability Staff Page Expands

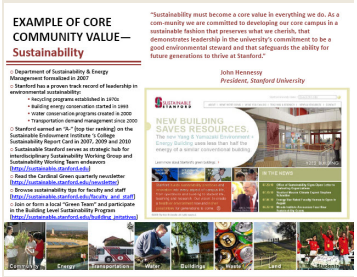
The Department of Sustainability and Energy Management leads initiatives in campus infrastructure and programs in the areas of energy and climate, water, transportation, green buildings, sustainable information technology, and many others. The Office of Sustainability connects this organization of over 90 professionals with staff from other operational units across campus to form Sustainable Stanford, which supports President Hennessy's belief that "sustainability must become a core value in everything we do."



Visit the updated program staff page to meet the leaders in sustainability and learn their roles and responsibilities.

Sustainability Resources for New Hires

New to Stanford? There are a host of online sustainability resources available to new hires.



In addition to an overview on the Stanford Organization and Policies: Community Values section of the university's New Hire website, employee orientation now includes expanded presentation materials on sustainability programs relevant to new community members. A flyer in the take-home packet further describes Stanford's track record of environmental stewardship and institutional sustainability, as well as the great ways for faculty and staff to become directly involved with sustainability programs. Please remember to visit the faculty and staff page on the Sustainable Stanford website for more details.

Associate Director Hired to Lead Facilities Energy Management Group

Gerry Hamilton, Associate Director, FEM

Gerry Hamilton joined Stanford University's Department of Sustainability and Energy Management in June 2010. In his new role, he directs the activities of the new Facilities Energy Management (FEM) program, which includes the operation of campus Building Management Systems, oversight of the university's Sustainable IT program, and supervision of Energy Retrofit Projects. As Associate Director, Gerry will ensure that buildings and associated processes are operated efficiently and that new facilities incorporate best practices for energy use.

Before joining Stanford, Gerry was the Director of Technology Applications at Global Energy Partners in Walnut Creek, CA. His team provided energy management services to utility and industrial clients across North America. Typical projects included technology assessments and field demonstrations, facility audits, technical and market potential studies, and greenhouse gas emission reduction strategies. Prior to Global Energy Partners, Gerry was a Senior Project Manager in PG&E's Customer Energy Efficiency group. While there he led the development of multiple new demand-side management programs targeting commercial and industrial customers. These programs promoted the adoption of technologies and practices to use energy more efficiently and to reduce peak electrical demand.

Gerry's professional interests include energy and water use, air emissions, and combustion. He enjoys identifying and developing facility improvement projects that inspire stakeholders by simultaneously delivering cost savings, improved quality and comfort, environmental benefits, and of course, energy savings.

Gerry holds a B.S. in Mechanical Engineering as well as an M.B.A. from Santa Clara University. He is also a registered professional engineer in California. Gerry's office is located at 327 Bonair Siding. To contact Gerry, call 650-724-8007 or send email to Gerry Hamilton.

Zones Management Exceeds Energy Savings Target

by Julie Hardin-Stauter, Associate Director, Zones Management Administration

In 2009, as part of the budget savings initiatives within Land, Buildings and Real Estate (LBRE), the Zone Management Team within Buildings and Grounds Maintenance submitted a proposal to save approximately $1.4 million by reducing energy consumption—electricity, steam, and chilled water—in academic buildings. Proposed efficiency measures included incorporating lighting control, modifying zone level temperature control, building time scheduling, and the installation of energy efficient

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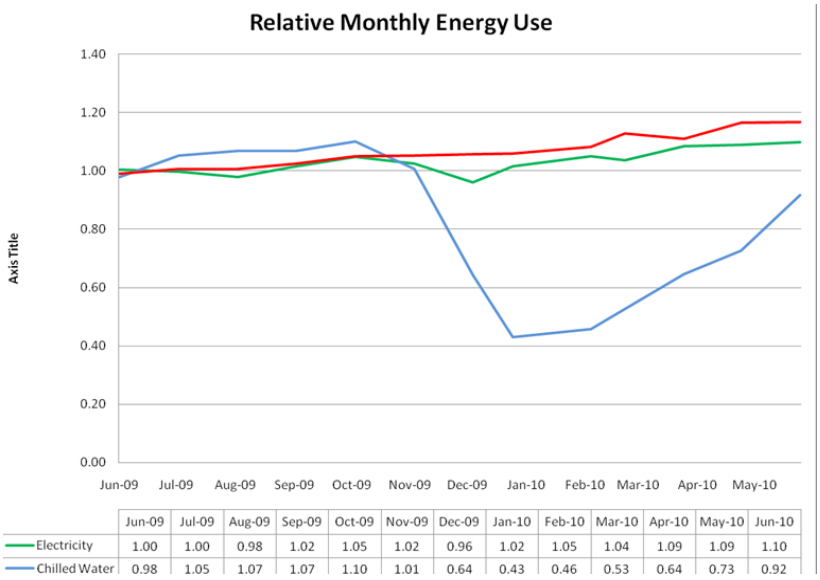
Zones Exceeds Energy Savings Target *(continued from previous page)*

lamps and ballasts as part of the deliverables for the Investment in Plant projects. These projects received rebates from both Stanford's Energy Rebate Program and a total of $130,132 from PG&E's rebate program. Zone Management has exceeded the overall target goal of $1.4 million with an investment payback of less than five years. The actual savings will be finalized in September 2010. Zone Management is working towards standardizing practices, continuous monitoring of mechanical systems, and performing regularly scheduled maintenance so that it can continue to improve existing building energy usage.

Data Center Efficiency Measures Earn Rebate Check

by Joyce Dickerson, Director, Sustainable IT

Stanford recently received a $36,428 rebate check from PG&E for energy efficiency improvements in the Forsythe Data Center. Under the direction of the Sustainable IT program, the project included installation of a data center-wide environmental sensor network to track temperature, pressure, and humidity at each rack. Managers can log into the dashboard and review a visual display of conditions within the space. Alarms notify the team if sensors detect conditions outside the acceptable range. Existing Computer Room Air Handlers received variable speed drives to facilitate greater precision in temperature management, and the existing outside air economizer was reconnected to directly supply cool air whenever weather allows. Additional modifications included floor and ceiling tile replacement to better direct and contain air within the data center and increasing both the chilled water and ambient room temperatures. In combination, the suite of measures enables the data center to protect the servers it houses using far less energy.



	Jun-09	Jul-09	Aug-09	Sep-09	Oct-09	Nov-09	Dec-09	Jan-10	Feb-10	Mar-10	Apr-10	May-10	Jun-10
Electricity	1.00	1.00	0.98	1.02	1.05	1.02	0.96	1.02	1.05	1.04	1.09	1.09	1.10
Chilled Water	0.98	1.05	1.07	1.07	1.10	1.01	0.64	0.43	0.46	0.53	0.64	0.73	0.92

Compared to last year, IT load at Forsythe increased by 17% but requires only 10% more electricity and uses 8% less chilled water. The Power Utilization Efficiency (PUE) dropped from 1.8 to 1.4 within a few months (for an explanation of PUE, see page 6 of the Cardinal Green Spring 2010 Issue). According to PG&E, the implemented efficiency measures save 359,000 kWh of electricity annually, equal to approximately 147 tons of avoided greenhouse gas emissions. Congratulations to the Forsythe team! For more information on Sustainable IT, please contact Joyce Dickerson.

CEE/ES 109: Green Buildings and Behavior Returns to Winter Quarter

Recently recognized as a "Dream Course" by Sierra Magazine, **CEE/ES 109: Green Buildings and Behavior**, made possible through collaboration between the Office of Sustainability and the Woods Institute, will return to the academic schedule in the 2011 Winter Quarter.

The course engages students in Stanford's sustainability programs and operations. It features lectures from more than 20 faculty and staff members on topics including:

- energy efficiency
- food systems
- water conservation
- waste reduction

Lectures are paired with relevant site visits and hands-on research, including a waste audit!

The course also prepares participants to apply for internships as Student Sustainability Coordinators.

How-To Guides Go Live Online

Visit the Sustainable Stanford website to download the new guide "How To Reduce Computing Energy Use," the first in a series of "How To" guides to be published this quarter.

The guides serve as practical complements to the Building Level Sustainability Program (BLSP), and the subjects for each guide reflect the most frequently asked questions from building occupants during the BLSP pilot projects. Revisit the publications page throughout the fall to learn about establishing office composting, creating a bike fleet, applying for Energy Retrofit Project funding, and a number of other local actions. Please send your ideas for topics to Jiffy Vermylen.

Tracking Building Level Sustainability Program Implementation

After three successful pilot projects and the CEE/ES 109 Green Buildings and Behavior course, the Building Level Sustainability Program (BLSP) went live last spring. At present, there are three buildings with live studies underway and a long list of buildings just starting to pull together Green Teams in support of the program. The Office of Sustainability spent the summer interfacing with leadership at each of Stanford's seven schools to understand how to best integrate the program with existing sustainability efforts.

In the School of Earth Sciences, occupants of Mitchell and Braun (Geology Corner) participated in a sustainability survey in early May. Based on those results, building managers, student sustainability coordinators, and the Office of Sustainability developed a targeted Green Action Menu to address the major opportunities for improvement specific to each building. High on the list of specific energy conservation measures were the following actions: distribution of SmartStrips to occupants with multiple computing peripherals, deployment of BigFix Power Management on departmental computers, establishment of a composting program in each kitchen, and significant delamping in all common areas. Results from the three month tracking period are expected this fall.

Contact Jiffy Vermylen in the Office of Sustainability with questions related to the program.

Stanford Dining Publishes Sustainability: A Way of Life Report

by Matt Rothe, Sustainable Food Coordinator, Residential & Dining Enterprises

In early August, Stanford's Residential and Dining Enterprises published *Sustainability: A Way of Life*, a booklet dedicated to the numerous avenues through which food impacts the Stanford community. The sustainability report provides a detailed look at education, outreach, and awareness; collaboration and partnerships; and wellness and culinary excellence. A great resource for students, faculty, and staff, *Sustainability: A Way of Life* explains everything from where and how Stanford Dining and Stanford Hospitality and Auxiliaries source food, to the operation of campus gardens, and how both organizations contribute to the university's waste reduction goals.


EDUCATION, OUTREACH and AWARENESS

"The School of Earth Sciences engages in teaching and research in a range of environment and resource issues. We have a unique campus partner in Stanford Dining ... to manage productive and educational gardens and create a working model of the food system from farm to table for students to participate in and learn from."

PUTTING the FARM BACK in "THE FARM"

Eating and growing food offers us the opportunity to engage on a daily basis with issues related to health, the environment, social equity and the global economy, and we actively foster this experiential learning in our dining halls, our gardens and the classroom.

Green Fund Update: Students Maintain Campus Gardens During Summer Break

by Emily Bookstein, Class of 2011, CGI Summer Gardener

August is heavy with summer fruits and vegetables: miniature sweet apples, bulging red tomatoes, twining pole beans, and verdant Chinese cabbages to name a few. The garden beds at the Hammarskjold, Synergy, Columbae, and Enchanted Broccoli Forest student houses are yielding a small bounty, thanks in part to two students hired to tend the residential gardens for the summer.

Brianna Swette (CGI leader) and Donald Neal stand in the Columbae garden.

Past summers have seen the triumph of weeds throughout the gardens. To address the problem, garden managers approached CGI with a request to hire students to maintain the gardens during the break. Supported by the Green Fund, and in partnership with Student Housing, CGI hired Donald Neal ('12) and Emily Bookstein ('11) to maintain the gardens for summer 2010.

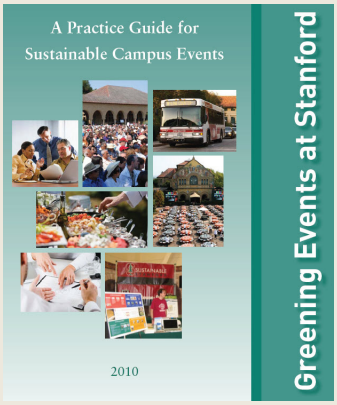
These part-time positions were created and filled by the Campus Garden Initiative (CGI), a student-run cooperative network. CGI funnels resources to gardening projects within the network, makes tools and seeds available to university-hired student managers, and acts as an intermediary between residential gardeners and Student Housing. During the school year, with CGI's support, the students care for gardens growing just outside their houses.

The experience proved to be fulfilling and educational. In contrast to a classroom focus during the school year, working in the Synergy garden provided the opportunity for hands-on learning. For instance, composting is now a process that I know from start to finish. Thanks to CGI, the Green Fund, and Housing, I had the chance to learn, enjoy my labor, and Synergy's 2010-2011 garden manager will inherit a welcoming, workable garden upon her return in September.

The Stanford Student Green Fund, managed by the Office of Sustainability, provides grants for innovative student-driven projects designed to create a more sustainable campus. For more information, please contact Elsa Baez.

Use the Green Event Guidelines to Plan Fall Activities

Are you planning welcome events for incoming students, a kick-off meeting for your club, or a departmental luncheon? Don't forget to make use of the resources provided in Greening Events at Stanford, an online guide created to promote sustainable choices in the planning and execution of events both large and small. Checklists at the end of each section and a master event checklist at the back of the guide provide a valuable roadmap.



Donald Neal and

Verified 2008 Emissions Inventory Recognized

Shalini Singh (center) receives Stanford's Climate Action Leader Certificate.

At the California Climate Action Registry Members Meeting in April, Stanford officially received the 2008 Climate Action Leader certificate in recognition of successful verification of the university's emissions inventory for that year. Stanford has publically reported university-wide greenhouse gas emissions to the California Climate Action Registry since 2006.

Office of Sustainability Intern Updates

Heather Benz

Over the summer, Heather updated the Student's Guide to Sustainable Living at Stanford which she co-created in 2009. She also served an internship with Suntech, a solar panel manufacturer. Heather returns to Stanford this fall in pursuit of a Master's of Science in Environmental Engineering. In her role with the Office of Sustainability, she will be developing the "How To Guides" launching throughout the fall.

Noel Crisostomo

In late spring and early summer, Noel completed teaching assistant duties for CEE/ES 109 by assembling lectures and audit materials for reference (available on the Sustainable Stanford Students page). Noel joined the Smart Meter Program at San Diego Gas and Electric (SDG&E) over the summer, where he gave presentations to civic organizations on the utility's advanced metering infrastructure deployment, worked with non-profit organizations to promote SDG&E's efficiency and demand response programs, and researched the utility's positions on State and Federal "smart grid" rulings. In the fall, Noel will serve as a teaching assistant for *CEE 207: Energy Resources* and *ENERGY 301: The Energy Seminar*.

Frances Ellerbe

Frances joined the Office of Sustainability as a Student Sustainability Coordinator last spring. She conducted energy audits of Braun and Mitchell for the Building Level Sustainability Program (BLSP) and worked with the School of Earth Sciences to craft the Green Action Menu for those buildings. Frances spent the summer in Washington, D.C. gaining insight into the world of public policy as a White House intern in the Office of Presidential Correspondence. This fall Frances will return to the Office of Sustainability and continue campus-wide BLSP implementation efforts.

Eli Pollack

After helping conduct and implement energy audits in Mitchell and Braun as a Student Sustainability Coordinator, Eli spent the summer researching photovoltaic technology in Professor Bruce Clemens Materials Science & Engineering Lab. This fall, Eli will relocate to Beijing, China, with the Bing Overseas Studies program where he will study Chinese and learn as much as possible about China's renewable energy and efficiency programs. Eli returns in 2011 and will continue his participation in BLSP at that time.

Green Living Council Welcomes New Students

by Angela, Graham, and Nelson, GLC Co-Presidents

Green Living Council (GLC) is excited to start its fourth year of activism in the residences this September with new and existing members, called Green Living Coordinators (GLCs). The mission of the GLC is to build a campus culture in which sustainability is integrated into everyday life, and to bring education and awareness about environmental issues to residences. GLC envisions a future where students understand what is required and are inspired to act to make a positive contribution toward a greener, healthier world. While maintaining the current goals of the GLC, the 2010 – 2011 academic year will feature new events, initiatives, and activities.

The GLC's role is to reach out to fellow residents and educate them about current green events and initiatives taking place on-campus. GLCs are the new Eco-Reps, a part of DormGov in each residence. GLCs also serve as consultants to fellow residents regarding green living practices, such as providing information about recycling, distributing compact fluorescent light bulbs, and encouraging shorter showers and trayless dining.

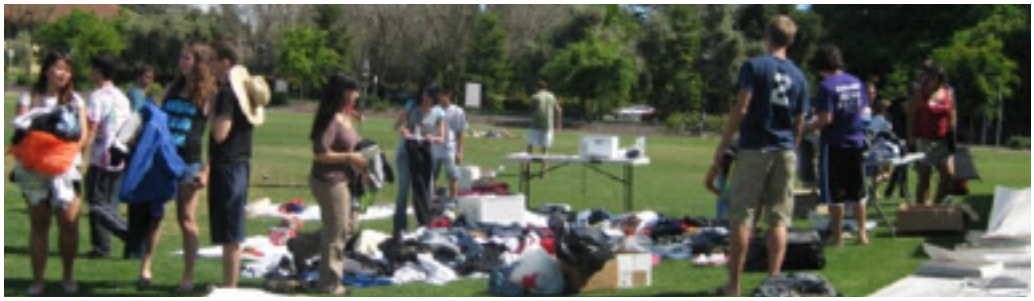
Through a partnership with Stanford Dining, Stanford Housing, and other student groups, GLC will be hosting new and continuing events that include:

- 350.org, International Day of Climate Action Photo Shoot
- Weekly Green Challenges (a green living practice challenge each week)
- Green Parties (dorm parties with sustainable, compostable products)
- Green Screens (environmental documentary series)
- Conservation Cup (dorm competition to reduce water and energy use)
- Green Free Store (part of green move-out at the end of the year)

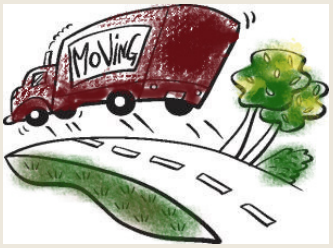
GLC will also launch green projects that have been proven to be successful in pilot interventions carried out in the past year in dorms, including shower timers, drying racks, and shared scrap paper recycling bins.

GLC is providing a unique academic opportunity with an improved two-quarter course titled "Promoting Sustainability Behavior Change at Stanford". The ES18 course provides training and support for students interested in creating intervention projects that focus on behavior change in residences. The course is open to all students. Please sign-up for the class (#3945)!

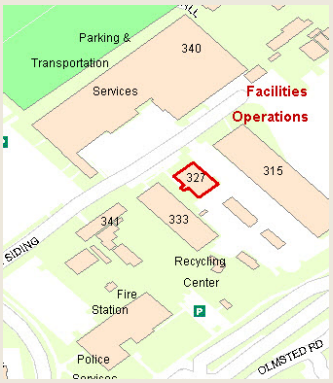
Visit the Green Living Council website for more information and to join us! Or for questions about the programs, contact us at greenlivingcouncil@gmail.com.



Office of Sustainability Has Moved!



The Office of Sustainability recently relocated our offices to the first floor of 327 Bonair Siding, across the Facilities parking lot from Parking & Transportation Services. The move consolidates the Department of Sustainability and Energy Management into one building, bringing together Utilities Services, Facilities Energy Management, and the Office of Sustainability. Stop by and visit anytime!



2010-11 Parking Permits / Commute Club Online

It is time to apply for 2010-11 parking permits or enroll in the Commute Club for the new academic year. Before you purchase a parking permit, consider joining the Commute Club, which pays up to $282 per year in Clean Air Cash or Carpool Credit to eligible commuters who don't drive alone to Stanford. If you are a current Commute Club member, be sure to re-enroll for 2010-11 to continue your membership. Beat the lines — order parking permits and enroll in the Commute Club online.

Stanford Joins the Great Race for Clean Air

by Lisa Kwiatowski, Marketing & TDM Outreach Manager, Parking & Transportation Services

Stanford has joined with Bay Area employers to lower emissions by reducing drive-alone commutes during the *Great Race for Clean Air* from August 1 through September 30. Employees who log their sustainable commutes online will be entered into weekly drawings for prizes, such as gift cards from Starbucks and Best Buy, courtesy of the BAAQMD and 511.

At the end of the competition, employers with the highest carbon dioxide savings and employee participation are declared the winners. But everyone is a winner with improved air quality and reduced traffic.

Although the race started August 1, individuals should begin logging their commutes anytime, as the system is set up to enter previous weeks all at once. To participate, register at http://www.greatraceforcleanair.com and select "Stanford" from the list of employers. When you log in, you can complete a log for the prior weeks to indicate how you commuted to work and stayed true to your pledge.

Two Stanford Commuters Profiled in "My VTA"

by Lisa Kwiatowski, Marketing & TDM Outreach Manager, Parking & Transportation Services

Maria Frank, a student services officer in the Department of Physics, says convenience is one reason she likes her VTA bus commute between Mountain View and Stanford. She notes that riding the bus takes her the same amount of time as driving and the Marguerite shuttle drops her closer to the entrance of her building than if she drove. But there is another reason she smiles when thinking of the benefits of switching to a bus commute, she met her boyfriend at the VTA stop near her house.

Tess de Guzman, an administrative associate in the Worklife office, also commutes from Mountain View and says her VTA bus commute means she doesn't have to worry about "crazy drivers" and she has time to do whatever she wants, including playing with her new Apple iPad, tweeting, reading, and talking with friends. Her choice is consistent with her family's commitment to sustainability and their efforts to leave their Honda Civic hybrid at home by taking the bus or train for work and fun.

While their stories differ, both women agree that leaving their car at home means less stress and a more enjoyable commute. Their stories may soon inspire others beyond the Bay Area, as the American Public Transportation Association considers featuring their profiles in a national campaign. As Stanford Commute Club members, Maria and Tess enjoy the additional reward of up to $282 per year in Clean Air Cash.

To learn more or to request a transit or bike commute plan to Stanford, visit the Parking & Transportation website at http://transportation.stanford.edu/commuteplanning or send an email to commuteclub@stanford.edu.

Case Study: EH&S Eliminates Bottled Water

by Craig Barney, Manager, Environmental Health & Safety

Bottled water provides convenience, a refreshing taste, and what many people perceive to be high-quality drinking water that contributes to overall health. What is sometimes not considered is the financial and environmental impact of bottled water, from water cooler rental and delivery to the disposal of five-gallon and individual-sized containers. To address these concerns, Stanford's Department of Environmental Health and Safety (EH&S), with the help of graduate student intern Greg Olsen, decided to eliminate bottled water, electing to install a filtered tap water system instead. The case study proved extremely successful on multiple fronts.

As a group, EH&S consumes about 120 gallons of drinking water per month in the departmental lunchroom, previously requiring 24 five-gallon bottles delivered each month. The annual cost for water delivery and cooler rental totaled approximately $1,900. With the newly installed water filter, the only ongoing cost is filter rental, about $65 each month. The baseline savings total $1000 annually, but because the filter has a flat-rate cost, the savings increase with increased consumption.

The most common plastic used for five-gallon water bottles is polycarbonate. Water suppliers clean and refill each bottle about 35 times before the plastic must be recycled. Production of polycarbonate emits greenhouse gasses and requires energy, crude oil, and water in both the manufacture and recycling processes. Carbon emissions are embedded in the bottling process as well as transportation of water from its source to the bottling facility and the final product to the end user. EH&S reviewed a variety of sources and data and concluded that the CO_2 emissions reduction realized by converting to filtered water is approximately 400 pounds annually.

EH&S also considered the impact associated with small bottles. Such items cannot be washed and refilled centrally and many times the bottles are not recycled properly, ending up in a landfill where they decompose very slowly, if at all. The energy used in the production of these bottles accounts for greenhouse gas emissions not included in the prior estimate.

Other potential benefits observed during the EH&S case study included:

- Elimination of exposure to bisphenol-A (BPA), a chemical that can leech into water and possibly disrupt the body's endocrine system
- Increased purity standards — bottled water is regulated by the FDA whereas tap water is regulated by the EPA, which uses stricter standards
- Reduction in potential injuries since no one lifts heavy water bottles to refill the cooler
- Additional floor space in the EH&S lunchroom
- Elimination of people entering secure-access areas to deliver drinking water

To learn more about the EH&S case study and for questions regarding he program, please contact Craig Barney in Environmental Health and Safety.

Stanford Mourns Climate Expert Stephen Schneider

Stephen Schneider, Stanford biology professor, senior fellow of the Woods Institute for the Environment, co-winner of the 2007 Nobel Peace Prize, and influential climate scientist, died July 19th on a flight from Stockholm to London. Dubbed a "climate warrior" by the New York Times, Schneider was a vocal advocate for the veracity behind the science of climate change.

He implored the media to deploy journalists trained in science to cover climate change stories and to allocate more time to explaining the topic's complexities. He recently published a book chronicling his involvement with the public climate change debate, *Science as a Contact Sport: Inside the Battle to Save Earth's Climate*. More information on Stephen Schneider's life and work can be found in Stanford News coverage.