Green Pastures

Green Campus Interns Shannon Nowell (left) and Elaine Dulay(right) pause during the campus lighting audit (see page 2)

Cal Poly Pomona

Green Campus Program

In This Issue

The 8th Annual UC, CSU, CCC Sustainability Conference

By Elaine Dulay & Shannon Nowell
UC Santa Barbara, June 21-24, 2009
"Working our way to Zero"

The 2009 UC/CSU/CCC Sustainability Conference offered a wealth of information for the Cal Poly Pomona Green Campus team. The conference provided interns with the opportunity to meet with exhibitors and professionals in the field, along with workshops focusing on sustainable solutions in waste reduction, energy, transportation, procurement, and water efficiency. Sessions not only featured winning projects that were recognized in the Best Practice Awards for the 2009 Higher Education Energy Efficiency Partnership, but new policy and curriculum that have been introduced into the largest California higher education systems.

The Cal Poly Pomona Green Campus interns attended various workshops on water, transportation, energy, and Green Building/New Construction, in order to find inspiration for projects to implement on campus. For instance, Green Campus attended a workshop in the water track on emerging water conservation technologies. This workshop showcased water-saving techniques and design solutions used at some UC campuses, such as new water-efficient cleaning techniques for the Robert Mondavi Institute, a teaching facility for Viticulture, Enology and Food Science. Another inspiring workshop talked about Bike Share programs initiated and surveyed by graduate students at UC Santa Cruz

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NEWS FLASH!

The script for our energy video has been completed and now we move to the filming! Projected completion date is early September!

Stakeholder Interview: Chi Kwan Fong

By Shannon Nowell

In the past four years, there has been a new momentum on the Cal Poly Pomona campus, the pursuit of sustainability! President Ortiz brought it to the forefront of Cal Poly Pomona agendas in 2007 when he became one of the first CSU presidents to sign the American College and University President's Climate Commitment (ACUPCC). According the the ACUPCC website, this is an initiative that garners "institutional commitments to neutralize greenhouse gas emissions, and to accelerate the research and educational efforts of higher education to equip society to re-stabilize the earth's climate" (www.presidentsclimatecommitment.org). Since then, electric vehicles have been introduced on campus, and projects such as the Bio-diesel Initiative which converts the campus' fuel-use to bio-fuel, and is spearheaded by the student-led organization, the Green Team. These projects and many more, are all part of the initiative to make Cal Poly a carbon neutral campus.

The question may be asked, "How do we 'green' our buildings?" Green Campus interviewed, Chi Kwan Fong, Project Manager and LEED professional for the Facilities Design & Construction department who gave us some insight into green building design, the process of utilizing environmentally responsible and resource-efficient processes throughout the life-cycle of a building, within the CSU system.

Chi Kwan has 21 years of experience in Architectural Design and 5 years as a LEED professional. Since buildings account for 70% of the energy consumption on campus, Green Campus thought it would be a good idea to find out more information about the new College of Business Administration building that is tentatively scheduled to begin construction in the next 24 months.

According to Mr. Kwan, "It is never too late to start implementing sustainability across interdisciplinary programs…that's the future." In fact, the College of Business Administration building was not originally intended to be a LEED certified building, however Mr. Kwan is hoping to make it Cal Poly Pomona's first LEED certified building on campus. How is that possible for a building designed three years ago?

The CSU system has developed a parallel program to LEED that is actually more stringent. Executive Order 987- Policy Statement on Energy Conservation,

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WHAT IS LEED?

LEED = Leaders in Energy and Environmental Design

LEED is a rating system established by the U.S. Green Building Council to calculate the green building processes used during the design, construction, and operation of new and retrofitted buildings. It is a third-party verification program that promotes improving strategies in energy savings, water efficiency, CO_2 emissions reduction, improved indoor environmental quality, and stewardship of resources with sensitivity to their impacts on the environment. Buildings can be certified in different categories: (insert pic)
Include as caption "Courtesy of www.usgbc.org"

LEED Accredited Professional (AP)
This credential is achieved through a two part exam; the LEED Green Associate exam and the LEED AP specialized exam. The certification is separated into five categories to represent an advanced specialized knowledge of green building in their particular field. The five categories for a LEED AP are:

Building Design and Construction
LEED AP Homes
LEED Interior Design and Construction
LEED AP Neighborhood Development
LEED AP Operations and Maintenance

LEED Green Associate (GA)

This is a non-technical accreditation for professionals who would like to demonstrate a basic expertise in green design, construction, and operations.

For more information on LEED: *www.usgbc.org*

Did you Know?

Appliances account for 64.7% of electricity consumption in the average American household. Refrigerators consumed the most electricity (14%), followed by lighting (9%).

http://tonto.eia.doe.gov/

Campus-Wide Audit: Exterior lighting

This summer, Green Campus interns will be consulting with facilities management for assistance in performing a campus-wide visual audit of all walkway and street lighting. Interns are also looking for any possible projects that can be taken on with the existing lighting. An audit of campus parking lots will also be conducted. The lighting audit will allow Green Campus and administrators to have data of the different types of lighting used on campus and show their specifications. The data from the audit will make it easier for interns and energy managers to reference that information for future lighting and retrofit projects.

Chi Kwan Fong Interview* *(continued from page 2)

Sustainable Building Practices, and Physical Plant Management was introduced in 2005 and required a 15% reduction of energy consumption on campuses by 2009/2010. In response, this building was designed to exceed California's Title 24 by 20%- that is equivalent to LEED Silver. Now, Chi Kwan was not a part of the Cal Poly team when this building was designed. However, it is his goal that in future developments, LEED be introduced at the planning stages because it consolidates efforts between the different design and construction agendas. George Lwin, Cal Poly Pomona's Energy Services Manager for the Facilities Planning and Management department agrees. He says, "The synergy in having interdisciplinary (discussions) are good because everyone's concerns and issues are addressed...building a building is a journey."

The Future Home of the College of Business Administration

Mr. Lwin just passed his test to also become a LEED professional.

Mr. Kwan will be submitting this building under New Construction 2.2 standards and guiding the process to attain the most LEED points during construction. This will include working with George on the LEED category "Innovation & Design Process." Through integrated design approaches, the Maintenance and Planning Design team are working on a centralized boiler plant to service three buildings; including the new Business Administration Building.

For more information on Green Building, check out the EPA's website for a break down of the processes involved in utilizing green building techniques. *http://www.epa.gov/greenbuilding/pubs/about.htm*

Home Energy Audits

By Andrew Coyne

One of the best decisions a homeowner can make is to conduct an energy audit. An energy audit helps the homeowner pinpoint those areas of a house where energy is being wasted. While simple practices such as flipping off the lights or taking shorter showers are beneficial, the only way to detect chronic energy waste is through an audit. The U.S. Department of Energy categorizes home energy audits into two basic types, professional audits and Do-it-Yourself (DIY) audits. They have also been described as scientific and non-scientific audits. The professional audit, conducted by a hired contractor, makes use of diagnostic instruments to give a very specific evaluation of the home's energy efficiency.

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Home Energy Audit (continued from page 3)

The main cause of energy waste in a home is air leaks. To test for leaks, the inspector will perform a blower-door test, in which he or she sets up a special fan in an exterior doorway to reduce air pressure inside the house. As the pressure is reduced, extra air will be drawn in through any other openings-big or small. A computer in the fan calculates how much the air pressure changes in an hour to verify the extent of the leaks and a tool called a smoke stick can helps to locate the leaks.

Other diagnostic tools the auditor employs are diagnostic thermographs (which give the temperature of objects and reveal if walls are insolated or not), combustion analyzers, which measure furnace efficiency, and simple watt meters for appliance efficiency. These tools, and the professionals who operate them, can give a very detailed evaluation of a home's energy efficiency. However, they also are fairly costly. Sometimes, the most practical and effective energy audit is the non-scientific type; one that can usually be performed by the homeowners themselves.

A Do-it-Yourself energy audit looks at the same areas as the professional audit, minus the expensive equipment. The auditor will make a visual overview of window and doorframes, baseboards, attic hatches, weather stripping, insulation, and appliances. Once the overview is complete, improvements can be made to the house, such as adding weatherstriping, filling in holes, caulking gaps in baseboards and window-frames, and adding power-strips for appliances that produce phantom loads. In sum, it is an imprecise form of audit; yet nonetheless, it can be effective if the homeowner has a good basic understanding of the house's systems and knows what to look for during the evaluation. To learn more, check out the Alliance to Save Energy website, where you can find information on performing your own home energy audit.

Sources:
U.S. Department of Energy
http://www.energysavers.gov/your_home/energy_audits/index.cfm/mytopic=11160
"Efficient Energy". Green@Home. The Best of Fine Homebuilding Magazine. Taunton Press Inc., Newton, CT. Summer 2009.
Alliance to Save Energy
http://www.ase.org/

Summer Savings Tips

You may not have the time or money to do a full audit of your house, so here are some easy summer energy savings tips brought you by www.consumerenergycenter.org

Summer is here and we need to find ways to keep cool without running the air conditioner all day.

Tip#1 Turn up your thermostat
Set your thermostat to 78 degrees when you are home and 85 degrees or off when you are away. Using ceiling or room fans allows you to set the thermostat higher because the air movement will cool the room. Always take into account health considerations and be sure to drink plenty of fluids in warm weather. (You Save: 1 - 3% of your energy bill per degree, for each degree the thermostat is set above 72 degrees)

Tip #2 Fill up your Fridge
Having lots of food in your fridge keeps it from warming up too fast when the door is open, so your fridge doesn't have to work as hard to stay cool.

Tip #3 Install window shading
Install patio covers, awnings, and solar window screens to shade your home from the sun. Solar control window films applied to existing glass in windows and doors is an effective method to reduce peak demand during hot months and conserve energy whenever air conditioning is required. In addition to the energy management benefits, the use of these films can also reduce exposure to ultraviolet radiation and reduce glare. For future savings, strategically plant trees, shrubs, and vines to shade your home (You Save: 5-10% of your energy bill).

Sustainability Conference from page 1

and UC Davis.
Our upcoming Campus-Wide Lighting Audit made it especially valuable to attend a workshop on the comparison of savings between bi-level induction luminaires, LED's, and fluorescents with integrated controls. This research was conducted by California's Energy Commission's Research Development and Demonstration (RD&D) Division and their Public Interest Energy Research (P.I.E.R.) program. The workshop presentation focused primarily on UCSB's recreation center and their parking garage. Green Campus has already used some of the information gathered at this workshop to help conduct a Lighting Audit and Action Plan recommending more efficient lighting techniques and products across campus.

Prior to the conference, the Green Campus End-of-Year meeting took place on campus on June 21st. Green Campus Interns from campuses statewide met as a group to share their energy project successes and accomplishments throughout the past year. UC Berkeley, CSU Humboldt, and UC Santa Cruz presented their project highlight success of the year. The half-day meeting included breakout sessions for graduating, continuing, and new interns to review and evaluation program progress and orient new interns, and ended with a project "bonanza" to brainstorm new, innovative, and collaborative projects for the upcoming year.

The Student Convergence was held on June 24th, following the conclusion of the conference. The Student

Green Campus interns at the Sustainability Conference

Convergence was a way to bring the students who attended the conference together, and give them the opportunity to listen first hand to other student leaders. The Green Campus program spoke on the following presentation topics:

• TGIF – The Green Initiative Fund By: Max Broad of UC Irvine

• Career Workshop– Alliance to Save Energy's Green Campus staff, By: Renee Lafrenz

• Greeks Gone Green, By: Rob Ellsworth of San Diego State University

•Outdoor Lighting, By: Katherine Heflin of Stanford University

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Creating an Energy-Efficient World

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