

## **Bren School of Environmental Science and Management**

### **Sustainability & Climate Action Plan**

#### **Overview**

In Fall 2015, the Bren School of Environmental Science & Management was audited and assessed by PACES (Program for the Assessment and Certification for the Environment and Sustainability). Information was compiled using a Business Officer survey, notes from a departmental walkthrough, and a survey completed by building occupants. The results of the assessment as well as recommendations for future action are outlined in the report below. Furthermore, it is entirely up to the departments which of the suggestions below are implemented. Our hope is to present a menu of possible options from which your department can choose what works best for you.

#### **Transportation**

According to the building occupant survey for the Bren School of Environmental Science & Management (Bren School), 28% of employees are not aware of the UCSB Transportation Alternatives Program (TAP). For faculty and academic staff, this program offers a variety of resources including discounts on bus passes that provide unlimited MTD bus use, vanpool subscriptions, and pre-tax pay-roll deduction. TAP also offers 6 complimentary emergency round trip rides per year. For carpooling, TAP offers great benefits such as 57 hours of complimentary parking per quarter, 50% price reduction for carpool permits (that's \$225 of savings), and the Carpool Match Services' to accommodate diverse schedules. By taking advantage of the TAP program, the department's total gas usage for transportation can be greatly reduced.

Another method of environmentally-preferred transportation is biking. To encourage staff to bike to work, PACES recommends the staff participate in the CycleMAYnia annual Bike Challenge event which lasts the whole month of May. During this event hosted by Traffic Solution's, volunteers from the community's agencies, organizations, and businesses participate in the team-based competition to replace as many car trips with bike trips. Last year, approximately 698 individuals rode their bikes for a total of 248, 537 miles. This prevented 106,898 pounds of pollution. To sign up, please visit <http://cyclemaynia.ning.com/>. For rules and more information on the event, please visit <http://www.trafficsolutions.info/bike-challenge.htm>.

#### **Energy and Atmosphere**

According to the Building Occupant survey, only 50% of employees turn off their equipment when they leave their desk. This is something that the Bren School can quickly improve on. Furthermore, PACES noticed during the walkthrough that power strips are used; this increases the convenience and likelihood of building occupants turning off a large cluster of electronics and appliances at once.

PACES recommends hitting the off switch on those power strips at the end of the work day to reduce energy use. Cell phone chargers and other devices with a charging block should be fully unplugged or plugged into a turned off power strip when not in use. These are called "Vampire" plugs and will still use power when "off". To remind office occupants to turn off the lights and

appliances when leaving the room, increase the amount of signage and/or stickers next to the light switches, appliances, and electronics. PACES will provide these signs for you.

The most environmentally-preferred option is for building occupants to turn off their computers completely when they leave the office. This will decrease the ‘vampire load,’ unused electronics that consume electricity. The second best option is for the individual building occupants to tailor their own energy settings on their computers to their schedule. Altering computer settings to shut down individuals’ computer’s based on individual needs can be done with the help of IT department if necessary. For those who have security concerns or receive nightly updates, there is variety software available that turn computers on and off when needed. For example, a good energy saving software is TaskForceCO2. This software could potentially bring the 77% of staff that have their equipment shut off when they leave up to 90%. If this interests the department, PACES suggests looking into the following list of software that EnergyStar rated. [https://www.energystar.gov/products/low\\_carbon\\_it\\_campaign/implementation\\_resources\\_enterprises/commercial\\_software](https://www.energystar.gov/products/low_carbon_it_campaign/implementation_resources_enterprises/commercial_software)

When computers are in use, PACES encourages all building occupants to turn the computer screen brightness down to each person’s own comfort level. The added brightness of a computer screen can be more harmful than helpful to your eyes. Also, contrary to popular belief, screensavers often do not save energy. According to EnergyStar, some screensavers use twice as much energy, and may prevent a computer from entering sleep mode. Particularly problematic screen savers are those with rotating images and/or bright graphics. Therefore, rather than setting the monitor to go on standby when it is not being used for a certain amount of time, PACES recommends setting all department monitors to turn off after a certain period of time while not in use, and disable the screensaver.

Finally, during the walk through, PACES noticed a lot of personal heaters and fans, indicating that employees are opting to bring in their own equipment in due to temperature discomfort. Staff comfort is always very important. Therefore, for personal heaters and fans that are necessary, PACES suggests alternative heat sources that use less energy and are non-hazardous. We do not recommend a specific brand of space heater, but definitely do discourage the use of ceramic space heaters or any personal space heaters that use convection (i.e. hot coil and fan). A better option is circulating oil type heater. In this case, instead of heating air and blowing it around, the heater acts like a true radiator. A heater of this type may be purchased on Amazon, for example, this portable [oil radiator](#). Utility and Energy Services suggest using warming [foot pads](#) for under the desk use.

PACES advises continuous communication with Facilities Management about temperature comfort concerns and working with them to monitor and record building occupants temperature preferences. This way, when Bren is ready to make renovations, Facilities Management can better address the inefficiency and inaccuracy of the HVAC systems heating and cooling. However, before any renovations it is important to consider interim solutions. For example, staff should wear appropriate clothing and layers according to the weather.

## **Materials and Resources**

According to the MSO Interview, the Bren School strives to purchase office products online. This is a good move toward sustainability by using Gateway, which makes electronic paperwork and pathways instead of piling up paper documentation. Furthermore, PACES encourages the department to bulk in trips by picking up all necessary supplies in one shipment or trip rather than multiple separate trips.

The department also uses sustainable materials such as paper that is 30-50% Post-Consumer Waste and whiteboards, averting excessive use of paper or non-reusable products. PACES recommends switching to 100% Post-Consumer waste paper due to the new price parity. The 30% recycled paper costs the same as the 100% recycled paper. Furthermore, the Bren School does a great job at investing in products with replaceable parts to prevent the need for throwing away and wasting an unnecessary amount of material and resources.

## **Solid Waste Management**

Bren School employees make many efforts to reduce their waste stream. PACES was impressed to see that most of the department staff use reusable mugs, reusable dishes and cutlery. This is very effective in reducing the cumulative amount of department waste going into the landfills. Another way to reduce the Bren School waste stream is to encourage the use of Eco-clamshells for those who dine at Coral Tree Café and Courtyard Cafe. PACES suggests having 2-3 Eco-clamshells for departmental staff to borrow when they choose to dine at these restaurants. Patrons initially buy the reusable container with a meal and subsequently exchange rinsed, used containers for sanitized ones with next meal purchase. This is much more sustainable than using Styrofoam containers or products that constantly need to be reproduced

The department also does well in its efforts to reduce paper use by setting the photocopier and main printer to print double-sided, and placing a recycling bin right beside the main printer and each desk as convenient points of access. To further reduce paper waste, PACES recommends designating a tray for "GOOS" paper (Good On One Side) for those who to print one sided and make printing mistakes.

PACES is excited that Bren staff show interest in the topic of recycling and, as a result, have a conscious effort to recycle. It is important for the staff to know exactly what waste management resources are available to them on campus. Most Bren School staff are not aware that they should contact Central Stores about recycling broken furniture. Also, most staff are not sure who to contact about e-waste. Electronic waste is a growing problem in an increasingly technologically focused world. Devices go obsolete quickly, and many consumers simply discard old equipment. When e-waste isn't recycled properly it ends up in a landfill, often in very poor countries where it may be burned or just left in or near poverty-stricken communities. All of those wires and circuit boards are filled with heavy metals that leach into water and come in contact with local people and wildlife. These compounds can cause cancer, reproductive disorders, and many other health problems. It is important to clarify where and how to recycle e-waste. AS Recycling runs a free electronic waste collection program for members of the UCSB campus. You can drop off your e-waste at any of AS Recycling's e-waste collection bins. If multiple bins are present, please sort your waste according to the signage. If there is no battery or ink cartridge bin, these items can be placed in the general bin. Do not place CFL lightbulbs

anywhere other than in a lightbulb bin; a broken bulb leaks mercury and is dangerous for building occupants and our student workers.

By inviting AS Recycling in to do a workshop on recycling, Bren staff can learn about and discuss many recycling topics including the ones mentioned above. This can also provide an opportunity for Bren staff to give feedback on the departments recycling program.

Furthermore, the infrastructure in the office can also be improved to support this endeavor. During the department walkthrough, PACES noticed that some of the recycling bins and trash bins were not paired next to each other. Occupants tend to use the waste management system most effectively when; all of the options are present each time they go to dispose of an item. When not all options are available, employees may throw recyclables in the landfill bin rather than finding a more inconveniently located recycling bin. Therefore it is important to always have a pair of trash and recycling cans -- one solely dedicated to recycling and the other for trash. It is also important to maximize signage visibility so that material is placed in its designated location. PACES will provide the department with signage to assist staff when choosing whether to recycle or dispose of paper, wrappers, and other products.

### **Food System**

Bren can improve on their food orders for events and meetings by purchasing from more local and sustainable options. Sustainable options may include fair trade, organic, and humane food choices. For example, UCen Dining's sustainability efforts achieved 26% of sustainable purchases in the 2014-2015 school year. Choosing to purchase produce locally reduces environmental impacts of shipping, keeps food fresher, and supports our local economy and community. UCen Catering, IV Food Cooperative's Catering program (an approved caterer for times when neither the UCen nor Special Events are available to cater), and Silvergreens all support local and sustainable options.

### **Water**

Being proactive as a building occupant is significant to the sustainability of the building as a whole and PACES is proud that the department collectively makes an effort to report leaks or wasted water to fix the problem. It is important to continue doing so, educating and advising staff to continue speaking up when water appliance issues arise and need to be fixed.

PACES was excited to see a Hydration Station located in the department. Not only is it ergonomically healthy to get up from sitting after every hour to walk around, but it is much more sustainable to use the Hydration Station to get water. Also, using reusable cups and mugs to drink at Hydration Stations help keep plastic waste off of our beaches, decreases UCSB's carbon emissions by over 32,000 pounds each year, and reduces water waste. Furthermore, refraining from using single-use water bottles' reduce greenhouse gas emissions that occur in the production, transportation, and recycling of single-use plastics.

To prevent office injuries, the Bren School can improve on promoting stretching exercises and healthy living. Programs are offered through the RecCen, however, a simple and less costly activity would to request staff to step away from their desk for a few minutes a day to complete a

group exercise. The exercises can be metacarpal stretches or simple yoga poses to keep individuals healthy and more productive.

The Bren School is also clearly aware of and utilizes services that Julie McAbee, UCSB's Ergonomics Program Director, provides to assess and improve the ergonomics of workspaces. Feel free to invite her back periodically to reassess the office space. As mentioned in the Energy section of this report, great task lamps are being used in this department but there is room for improvement. With newer services such as lighting assessments to support the use of task lamps, Ms. McAbee can assist in assessing which staff members and spaces can best benefit from an office lamp. She can make recommendations or/and help cover the cost of new equipment. Contact her at extension 3283 or at Julie.McAbee@buss.ucsb.edu.

PACES is glad to provide free Star Spray, a nontoxic, Green Seal certified STAR-cleaning spray. The inhalation and ingestion of this Star Spray is of low risk to human health because it does not have harmful chemicals. Not only is this Star Spray safer for the office occupants' health, but it is also environmentally preferred. It is important to be aware that VOC's (volatile organic compounds), which are often found in paints, cleaning supplies, pesticides, office equipment (ex copiers and printers) are highly toxic organic chemical gases that can cause a variety of issues from eye and nose irritation to cancer. To restock on green chemicals, please contact PACES.

For tasks that BREN is currently using bleach for, PACES recommends replacing this VOC-rich chemical with low-VOC alternatives like Suprox-D, Oxivir tb, Oxivir Five 16, and Quat-64.

It is also important to keep VOCs and all potential pollutants away from food preparation, and food storage areas to prevent ingestion of harmful particles and toxins. BREN has done this well by having a dedicated kitchen and stationing the copier machine on the side of the hall opposite of the majority of the staff work spaces. For further precautions, staff members who change printer ink and toner should wear gloves because the ink can be carcinogenic. PACES also suggests that, since employees currently are not given safety advice on handling printer and copier ink cartridges, the Bren School include this warning in staff training and/or orientation. Furthermore, PACES recommends that the Bren School send used toner and ink cartridges to AS Recycling or Central Stores for remanufacturing; then purchase remanufactured ink cartridges as an alternative to the standard ink cartridges.

Another measure that the Bren School can implement to reduce the need for VOC's in the work environment is encouraging staff members to refrain from eating at their desk. According to the building occupant survey, 80% of staff eat lunch or breakfast at their desk at least three times a week. Refraining from this will decrease the chance of food particles lingering in the work space which decreases the chance of having pests. This will overall decrease the likelihood of needing to use toxins and harmful chemicals for extermination that can potentially harm building occupants in the aftermath of the extermination process.

### **Communication and Training**

In order to foster building-wide environmental awareness, Bren staff members should be informed of the current environmental excellence Bren administration has strived for. Communication about the department's sustainability goals and successes can be encouraged

once a month during meetings and integration of sustainability into staff trainings can be done with a few PowerPoint slides during orientation training.

It is important to engage and encourage all staff to give regular feedback on how the office is operating because they understand their space and its functionality the best. By setting aside time and a space for staff to provide insightful sustainability suggestions, staff comfort and productivity can be improved. We recommend setting up a method to collect suggestions on an ongoing basis. This can be during a quick “check-in” time slot each meeting or an email inquiring for any comments and suggestions to the office operations.

If the Bren School is interested in additional workshops or trainings, PACES can offer these workshops or if the topic is outside of our scope, can help to identify trainers who can. Institutionalizing this effort through an education plan and consistent communication will benefit the departments’ overall efforts to promote and excel in sustainability.

### **The Green Initiative Fund (TGIF)**

In February of 2016, PACES coordinators applied for a TGIF grant to retrofit the Bren School LED lighting fixtures. LED light bulbs are extremely energy efficient and long-lasting; an LED bulb can cut energy consumption by over 80% when compared to conventional light bulbs and can last up to 25% longer. Bren Hall Interior workspaces are currently lit with 32W bulbs, 18 hours per day. The LED retrofit will lower campus utility bills, bring more natural light to the Bren Hall, eliminate routine lighting maintenance, and reduce UCSB’s carbon footprint. Furthermore, LED retrofitting has been used in service learning projects in order to decrease the carbon footprint of campuses, and also to teach students about sustainability.

Students, staff, and faculty will be influenced by the lighting changes in the spaces that they work in. Thus, after installing the bulbs, a research poster that includes an analysis of the impact this project has on the environment will be displayed in the corridors of Bren Hall. These posters will be placed in central locations such as next to water fountains, elevators, and bathrooms; areas that receive the highest traffic. In addition, PACES suggests implementing discussion of the retrofit into the Bren School building tours. The Bren School serves as a showcase of Green Building on the UCSB campus and thus, will provide education on sustainability and green practices to the community.

**For additional suggestions or comments, please contact:**

Ashley Stewart: [ashley.ng.stewart@gmail.com](mailto:ashley.ng.stewart@gmail.com)

## PACES Assessment Checklist

- Increase peer to peer encouragement for more use of alternative transportation options by learning more from <http://www.tap.ucsb.edu/>
- Increase signs and reminders to turn off light and equipment at night
- Set up a reassessment of the Bren School w/Julie McAbee to a review placement of task lights as well as reassessments for ergonomics.  
For ergonomic revaluations, please contact Julie McAbee at extension 3283 or at [Julie.McAbee@buss.ucsb.edu](mailto:Julie.McAbee@buss.ucsb.edu)
- Request PACES can provide signage to put around light switches and appliances to remind staff to *turn off/power off/unplug* lights and electronic appliances when not in use
- Request IT Department to personalize energy settings on individuals' computer to turn shut down at the approximate time each individual leaves the office
- Encourage the use of Eco-Clam Shell To-Go Boxes for those who dine at Coral Tree Café and Courtyard Café
- Increase education and use of AS Event Recycling Services
- Pair trash and recycling bins together
- Increase signage of recycling bins throughout the office.
- Encourage staff to bring 2-3 reusable mugs and increase use of reusable cups and mugs
- When ordering from UCen Dining, request for even more sustainable options such as Fair Trade Organic, Organic Food, Local Food, Humane Food (ethically raised, handled and produced meat)
- Advise and provide staff protective gloves for changing printer ink and/or toner
- Recycle ink cartridges and toner
- Purchase remanufactured ink cartridges and toner
- Encourage staff eat not to eat at their desks
- Request PACES give a presentation on specific sustainability topics to the staff as formal information or training for the department's environmental efforts
- Integrate a sustainability portion to initial staff trainings.