

Final Report Requirements 2016-Learning and LEEDing at Cal

1. Tony Hall, Claire Parkinson
2. Building Sustainability @ Cal
3. Originally Funded by the UC Berkeley Construction and Design Department and now the Student Environmental Resource Center, partnered with the Office of Sustainability
4. Project Summary:
 - a. **Goals of the project:** The Building Sustainability @ Cal Program trains and utilizes students to help reduce the environmental footprint of campus buildings by educating building inhabitants and identifying structural and operational changes that can be made to buildings and campus as a whole. This is accomplished by hiring student interns in buildings, and working on case-by-case outreach and auditing projects. BS@C offers green building certification services for campus building projects and supports consultants managing LEED certification. Our main goal was to develop a model that will provide these services to campus projects that would not normally pursue green building certification due to expense and other reasons.
 - b. **Accomplishments/Successes:** Student Interns were able to gain skills at documenting green building performance, and were able to support current campus construction projects by working with Building and Project Managers to see what changes could be made to make these projects as sustainable as possible given financial and other constraints. Students learned many aspects of architecture, how to read construction documents, and how to utilize the LEED certification system. Building and Project Managers working on smaller campus projects that are not required to be LEED certified were awarded with Green Paw certifications at presentation ceremonies, news blurbs in campus newsletters, and a certificate to proudly frame in their building as rewards for pursuing sustainability in their building renovations.
 - c. **Challenges/Obstacles:** Developing the UC Berkeley Small Green Renovations Checklist was a long and difficult process in order to incorporate the many different standards and categories we wanted to include without penalizing projects for not pursuing sustainable choices not available to them, but at the same time holding these projects to a high standard of sustainability. It was also challenging to convince Building and Project Managers to change from traditional methods of building construction to more sustainable alternatives, especially when these alternatives were more expensive and time-consuming. Another challenge was the large amount of time it took to complete projects. Campus building projects run on very specific and individual schedules that do not always align with student's availability to do the work. Campus staff (project and program managers) are very busy and it was difficult coordinating information sharing and support that meets both the project's and the student's schedules.
 - d. **Feedback to TGIF:** We are happy with the advising support that TGIF provided to us for our project. We do not have any suggestions for the TGIF team at this time.
 - e. **Actual Timeline of the project from start to completion:**

During our time under TGIF, we worked on three types of projects. The first project was developing and finalizing the Small Green Renovations Checklist with projects at Pat Brown's, Anthony Hall, and the Calvin lab. Once we had completed these trial projects and finished making necessary changes to our checklist, we began using it to give campus projects Green Paw certificates based on how many points on our checklist they achieved out of the categories their project's scope included. The Cesar Chavez building was awarded 2 Green Paws in Spring 2016 and Haas Pavilion Athlete Study Center was awarded 1 Green Paw in Fall 2016. The third project we worked on was assisting campus buildings in achieving LEED certification by assisting in documenting LEED credits which we did at Campbell Hall and Eshleman Hall in 2012, Berkeley Art Museum and Film Archive in Fall 2015 and Jacobs Hall in Spring 2016.

Here is a breakdown of all of the projects we worked on under TGIF.

- i. Learning and LEEDing was funded for 2012-13 school year**
 1. Hiring of Three Green Building interns to start BS@C
 2. Initial Green Building renovation checklist was developed for campus projects
 3. Anthony Hall Renovations-Green checklist applied to project
 4. Campbell Hall replacement project-LEED case study and documentation process
 5. Eshleman Hall Leed Documentation- Documented 7 LEED credits for the Eshleman Hall construction.
 6. Pat Brown's LEED Documentation
- ii. 2013-14 School Year**
 1. Hiring of one new Green Building Intern
 2. Improvement and overhaul of Green Building Checklist with consultation from local architecture firm Siegel & Strain
 3. Evaluation of Hellman Tennis center and Calvin Lab by using Green Checklist.
 4. Created First implementation of awarding projects Green certificates for adequate Sustainability measures.
 5. Attended California Higher Education Sustainability Conference in San Diego, CA. Presented their process for developing the checklist and promoted the use of the checklist to encourage other institutions to pursue a similar program
- iii. 2014-2015 School Year**
 1. Attended and presented the small renovations checklist and its more recent developments at the Association for the Advancement of Sustainability in Higher Education conference in Portland, OR.
 2. Participated in Documenting LEAD credits SSc2 and SSc4.1 for Jacobs Hall project during construction.
 3. Conducted pilot phase testing For Green Building Checklist on Barrows Hall renovation

4. Finalization of Green Building Checklist, end of pilot phase; addition of new credits and removal of old, unnecessary credits based on LEED v4 and updated campus building codes.
5. Attended the CHESC at UCSF in July 2014 and presented checklist to other institutions. Interest from UCOP for making checklist programs around all UC campuses.

iv. 2015-2016 School Year

1. Evaluation of Cesar Chavez building project using Green Checklist, resulted in project being awarded 2 Green Paws in Spring 2016.
2. Documented LEED credits (daylighting, etc.) for Berkeley Art Museum and Film Archive in Fall 2015.
3. Documented LEED credits (bike racks, showers, daylighting) for Jacobs Hall in Spring 2016.
4. Began working with Haas Pavilion Study Center project on sustainable initiatives they can take, begun evaluation of project using Green Checklist (completed in Fall 2016, awarded 1 Green Paw).

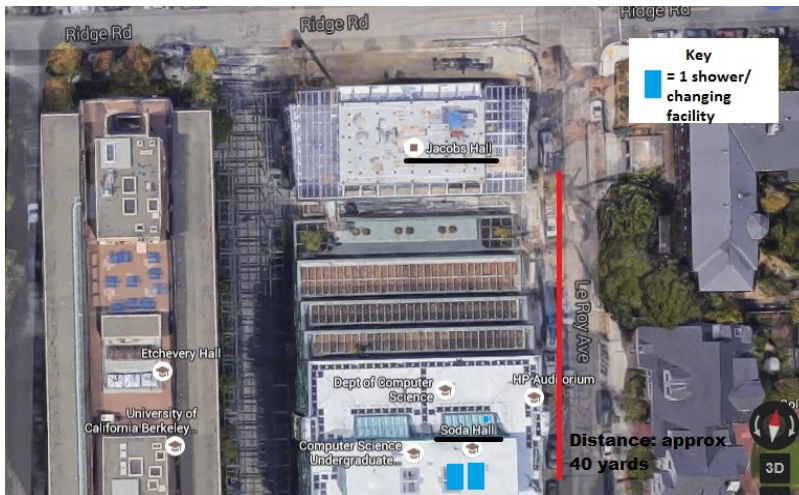
5. Sustainability Impact

- a. BS@C advised 6 campus renovation projects on changes and actions the managers could make to increase the sustainability of their projects, awarding Green Star/Paw certifications to 5 campus projects. BS@C also assisted 5 buildings in achieving LEED Certification by documenting specific LEED credits, including helping Jacobs Hall achieve LEED Platinum certification in 2016.
- b. When building projects that are designed to save resources such as water, electricity, or energy, the cost savings to the University can be substantial in the long run. Annual Cost-savings can vary widely from project to project and thus cannot be determined for the purposes of this grant. As our green building checklist promotes the use of flow-toilets, LED fixtures, Delamping of overhead lighting, efficient HVAC systems, and even high solar coefficients in occupied spaces, we are promoting the conservation of all resources entering the building. With Electricity averaging 12 cents per kWh and water averaging \$1.55 per hundred cubic feet of water, any savings to those can be substantial.

6. Visibility / Outreach (examples include building renovations, signs, a garden, etc.)

- a. We have attached our final presentation from Fall 2012 (<http://buildingsustainabilityatcal.com/sites/default/files/Fall%202012%20Final%20Presentation%201.pdf>), a copy of our most updated UC Berkeley [Small Green Renovations Checklist](#) (Haas Pavillion example here), and the news blurbs that were featured in the SERC newsletter and in the Office of Sustainability's newsletter regarding the Green Paw certification for the Cesar Chavez project (<http://sustainability.berkeley.edu/news/bsc-trains-students-reduce-environmental-impact-campus-buildings>).
- b. Photographs:





7. **Conclusions and next steps:** Our project is continuing on in the future with our current team of two student interns, Tony Hall and Claire Parkinson, and our coordinator Diane Mayo. We are expecting to hire another student intern in Spring 2017. Our next steps is for Tony and Claire to acquire their LEED Green Associate certifications and to continue working with campus renovation projects using our checklist and Green Paw certification process or to document LEED credits. Currently we are planning on working with Wurster Cafe and Moffitt Library using our checklist to award them with 1, 2, or 3 Green Paws and with Anna Head Alumnae Hall and Wheeler Hall on documenting LEED credits. Funding for our program is now being covered by the Student Environmental Resource Center, a division of the LEAD Center.
8. **Budget Summary** – include an official copy of a ledger with all expenses listed

Item	Cost per unit	Quantity	Total
LEED Reference Guide	\$150	1	\$150
LEED Exam Subsidy	\$300	4	\$1,200
Professional Advising for Checklist	\$120/ Hr	21.5	\$2,580
			\$3,930
Retreat Cost and Supplies (2 Separate retreats)	N/A	2	\$237.58
Miscellaneous Supplies (Printing, office supplies, etc)	N/A	N/A	\$54.37
			\$291.95
Employee Hours-Intern	\$11/hr	738 Hrs	\$8,118
Employee Hours-Team Coordinator	\$13/hr	189 Hrs	\$2,457
			\$10,575
Total			\$14,796.95