Moffitt Library

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Building Sustainability at Cal Program: Fall 2009
Moffitt Library Building Information

Opening Date: 1970  
Size: 5 stories, 140,000 square feet  
Space Types: Reading/Studying space, offices, meeting rooms, Free Speech Movement Café  
Building Occupancy: 73  

Narrative: The Free Speech Movement Café located on the third floor serves many local and organic meals to students and other building occupants. The café manager, Daryl Ross, is interested in increasing advertising of these environmentally friendly products. Due to a combination of problems related to the building’s age, system failures, and inadequate funding, Moffitt library no longer provides an environment that supports the requirements of the students and staff who use the building. Ineffective mechanical and electrical systems have also had a significant impact on the functionality and utility of the building. For example, because different floors in the building do not have stabilized temperature levels or ventilation, many areas remain cold in the winter and hot in the summer. Sufficient electric outlets are also not present to support the expanded use of laptops and the ambient lighting is not suitable or recommended for computer use and studying.

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Outreach: Green Office Hours and Transient Building Occupant Survey

Emily Alter
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Abstract

We needed a way to record student habits in order to gain a better understanding of Moffitt Library occupant behaviors that will inform the sustainable architecture and design decisions for the renovation. For three weeks in November, we held “green office hours” and tabled in the main entranceway of Moffitt Library. These office hours consisted of educating students about what to compost in the FSM café and, more importantly, gathering responses for the Transient Building Occupant Survey. The responses suggested that more and better recycling programs are the students’ top concern, followed by more control over lighting, food composting, and better signage. The Free Speech Movement Café compost program also should undergo a thorough re-design in order to maximize composting and recycling; this is our plan for next semester.

Purpose/Goal

The purpose of tabling in Moffitt Library was (1) to increase awareness of the Building Sustainability @ Cal program and the upcoming Moffitt renovation, (2) to educate building occupants of what to compost in the Free Speech Movement café, and (3) to administer the transient Building Occupant Survey to gather data, which will inform our Sustainability Plan of Action and the green building design of the new library.

Methodology
Kathleen Gallagher, one of the librarians in charge of the renovation, requested Aisha Hamilton, the library’s graphic designer, to create a formal and impressive bulletin board, with photographs and biographies of all the students from BS@C who were involved in the building’s sustainability team. Once this was complete, we tabled beneath the board (which proved to be a slightly embarrassing task because pictures of ourselves were featured prominently, but it proved effective because the board was so well done). Along with the students from ER 199 and ES 84 classes, we (the interns) scheduled two-hour blocks of “office hours” spread over the three weeks before Thanksgiving Break. We chose to do three days a week and varied our hours so as to target different student populations at each time – 4 pm to 6 pm, 5 pm to 7 pm, and even one 9 pm to 11 pm shift.

At these office hours, our primary goal was to get transient occupants (students) to stop by our table and take the survey in order to win a reusable water bottle. We did this by calling out to everyone who passed by, a similar process to flyering or soliciting for any cause. However, by in large the students who stopped by our table were interested and thoughtful. As they took the survey, we would tell them about the renovation project and what we were trying to accomplish.
We also told them they could enter their name twice for the water bottle raffle if they also played our composting game. This game consisted of having the student sort out a collection of cups, plastic bags, utensils, and other random objects from the next-door Free Speech Movement Café into what was compostable and what was not.

Results

Our first purpose, raising awareness of the Moffitt renovation and of the BS@C program, was achieved by the professional display. This was evident not only when we tabled, but also as we were asked by our friends, “We saw your pictures in Moffitt! What was that for?” It turned out to be a very successful and prominent way to advertise BS@C and the renovation in general.

Our second goal was to engage students in the compost game and increase awareness of what to compost and what not to in the Free Speech Café. We believe this was a successful endeavor, because students would usually be very surprised that certain
things were compostable or not (such as the biodegradable plastics and coffee stirrers, and the non-compostable coffee lids). One student also stood silently for a long time after the game and finally asked us, “So what is the difference between composting and recycling?” We are glad he came to us.

Our primary purpose was to receive responses to the Building Occupant Survey and make recommendations based on them. We received 86 responses to our survey, most of which were from students. We had a nice variety of transience as well: there was a fairly even spread of how many hours the respondents spend in Moffitt. One source of bias to be aware of are the fact that this was a voluntary survey.

Those who elected to take it were likely in the reusable water bottle (which also implies a basic interest in sustainability). Using surveygizmo.com, we received a detailed report (see next section) which highlighted some important trends that informed our recommendations.

**Recommendations**

We noticed general trends and have come to certain conclusions based on the results.

For printing, it seems that people are well aware that the default is duplex (printing two-sided), and they adjust this if they need to print one-sided. We believe this is reasonable. 19 people (22% of the sample) wanted to see One-Side Clean printing stations. While we think these are a
good idea, the printers cannot be set to a default of duplex and one-side at the same time. There would have to be a designated printer for One-Side Clean (OSC) paper. Designating one printer for OSC paper could be a feasible pilot experiment for the future. Additionally, it is likely that many survey participants were unaware what one side clean paper printing was. In order to gain buy-in from transient occupants, the library would likely have to do an educational campaign to increase awareness on what OSC printing is and how to do it.

For lighting, a substantial amount of people (46%) said they felt they did not have adequate control over the lighting in their personal space. 56% signaled that lighting is a significant concern for the renovation, a category that includes task lights. We suggest that when renovating study cubicles and spaces, the task lights are replaced with efficient fluorescents (and specifically not incandescents).

Students seem to be well aware of recycling and want more locations and better signs for the renovations. Some people also pointed out that the only recycling available in Moffitt is for paper, which makes recycling cans or bottles inconvenient. While we are aware that food and drink are currently not allowed in the library, if the renovated spaces become food- and-drink friendly, providing bottle and can recycling is essential to promoting library sustainability.
In bathrooms, most people use paper towels (58%). Considering this, it may be useful to conduct a paper towel-composting pilot to see how much waste can be diverted. When choosing between hand dryers and paper towels, we believe there are benefits and disadvantages to both. Hand dryers would cut down on the waste, but they use electricity and are not necessarily more sanitary. Additionally, there is the issue of noise associated with using hand dryers. “Using my pants” proves to be the most sustainable solution offered by survey participants, but we are not sure this will catch on. This is a decision for the architects to make with the input of custodians, but students seem to prefer paper towels.

Regarding Free Speech Movement Café, the composting game helped many people realize that there is composting available in the café. The biggest complaint is that the bins are too small for composting, which we noticed particularly. The bins are usually overflowing and the signs are not prominent or clear. Refer to Moffitt’s Sustainability Action Plan for our plans for next semester in FSM.

Elevators do not seem to be a huge problem; people seem to use them when they need them, and use the stairs otherwise. We do not think much can or should be done about this issue. One interesting fact is that the stairs were constructed too steeply for today’s standards. When renovating, improving the staircases to be less steep might encourage more students to use the stairs instead of the elevators. Additionally, a “take the stairs day” or educational flyers posted next to elevators may help remind students that taking the stairs is more environmentally friendly and better for your health.
Not many people have ultimately heard about the Moffitt Renovation; if they put “yes,” it is probably because they asked us why we needed this survey and we mentioned it to them. The library may want to consider launching a wide scale publicity campaign for the renovation in a few years. The reason we don’t think people need to hear about it now is because Moffitt is an undergraduate library. The undergraduates right now on campus will have mostly have left by the time the renovation begins in 2011.

We received some valuable suggestions for the renovation. The most pressing concerns that students identified based on our suggestions were recycling, followed by measures like ReUse stations, lighting, ventilation, etc. Interestingly, the second most pressing concern was indoor plants – 68% of all survey respondents really liked that idea. Cozy chairs, student murals on the walls, and use of natural lighting were some aesthetic suggestions. One person pointed out that compost bins are nowhere to be found except for FSM, which is a problem if anyone takes food to go, or indeed eats anywhere on campus.
In addition to the written responses, we received some notable verbal suggestions and concerns. One woman asked us to bring up the fact that people smoking right outside of Moffitt is a health risk; another person pointed out that there were no bathrooms in the basements. One idea we liked was to make environmental statistics public such as Wurster Hall has done (maybe by having a green bulletin board) so people are aware of building energy and water usage as well as current sustainability efforts. Making this information available can help students can gauge their own personal habits and look for ways to change.

The next time we conduct a voluntary building survey, we could probably be a bit more aggressive or active when soliciting responses from people walking by the table. Also, emailing the survey out to a randomly selected population might yield greater results. In general, however, our efforts in Moffitt library during the month of November proved to be successful.
Outreach: Brown Bag Lunch Presentation

Abstract

We decided to use a Brown Bag Lunch presentation to display the results of the water audit and waste audit we completed earlier in the semester. Brown bag presentations are successful ways of disseminating information to building inhabitants, and students hoped to present audit results and retrofit information to staff and faculty. 10 staff members who were active in asking sustainability and retrofit questions attended the event.

Methodology

First, students advertised the event through displays in the entry of Moffitt Library, emailing, and tabling (see the appendix of this report for the advertisement). The event was held for a one hour time period (12:30-1:30pm). Building Sustainability at Cal provided snacks, coffee and tea to entice participants. Students provided a powerpoint presentation (found in the appendix) that outlined the sustainability goals of campus, the results of the waste and water audits, and sustainability tips. Upon the conclusion of the powerpoint, attendes were asked to participate in interactive waste segregation game. Finally, participants were given a chance to ask questions and give recommendations for the sustainable redesign of Moffitt.

Results

Ten building inhabitants came to the presentation- the advertisement in the entry of Moffitt Library, tabling, and email advertisements proved to be an effective method to capture the inhabitant’s attention. Participants were eager to ask questions about sustainability throughout the presentation showing that they are interested in turning their workspace into a sustainable space. Additionally, the waste separation game was able to answer many occupant questions about what to do with discards in the building, especially in the Free Speech Movement Café where composting is available. Finally, participants recommended increased availability of recycling bins and better signage for the redesign of Moffitt.
Future Recommendations

Although 10 participants did show up to the event, Building Sustainability at Cal was hoping for a greater turn out. Increasing advertising for the event, especially through word of mouth, would have resulted in higher attendance rates. Additionally, occupants seemed interested in knowing more about the Moffitt retrofit, but as the program is still in early planning phases, a great deal remains unknown. We recommend other Brown Bag Lunch seminar be held in the coming months and years to inform inhabitants about the sustainable retrofit of the Moffitt Library.
Local Food Item in Free Speech Cafe

Peter Lollo
Phillip Barnett

Abstract

The purpose of this project is to encourage students to consume locally produced organic food on campus. To achieve this, the students met with the manager of the Free Speech Movement Café (FSM) to discuss various proposals intended to increase student food education. After the meeting, it was decided that the best option would be to place an informative graphic symbol next to each item on the FSM café menu made from 75% or more local or organic ingredients. The indicators—pictures of farmers—will inform patrons about the percentage of organic or local ingredients in a particular menu item. The farmer icons have created this semester and will be added to the menu board in the summer of 2010.

Purpose/Goal

This educational project aims to help FSM café customers connect the words “affordable, healthy, delicious, and available” with local and organic food products. The students see two potential beneficial outcomes of this project. First, the educational campaign will allow customers to discover the local and organic ingredients present in their purchased food. Second, if customers start purchasing more local/organic food items, the café will begin to serve more of these products. Thus, the students will attempt to encourage customers to place requests for campus dining services to provide more local/organic food in order to give momentum to the local and organic food movements.

The environmental issue being addressed through this project is the large amount of carbon emissions produced by our food system. Our current industrial agriculture system
heavily depends on fossil fuels to produce the food (pesticides and fertilizers) and to transport it across long distances. Instead of transporting food thousands of miles, which results in the extensive production of greenhouse gas emissions, it is better for the environment if food vendors purchased locally produced food (a general definition of local has been stated as within 200 miles, however the closer the better is a good rule of thumb). Additionally, it is likely that local farms practice more environmentally conscious growing techniques than the enormous monocultures located much further away from the relatively “green-minded” Bay area. Thus, the students believe that encouraging people to eat more locally grown food helps decrease the public support for a heavily oil-dependent US industrial agriculture system.

This specific project was chosen because of various environmentally oriented goals that many of the university dining services have already set forth and somewhat achieved. Specifically, Cal Dining is famed for its large selection of organic and local food as a result of student-initiated movements. Hence, it is clear that there is a demand by students for this type of food.

Furthermore, this project specifically targets FSM café in Moffitt library because of its popularity. Since the café serves enormous amount of customers daily, it provides the greatest opportunity for educating the largest number of building users. Additionally, these customers are eating local and organic food unknowingly because of the café’s lack of advertising. Thus, with proper advertising, the customers will be able to grasp the connection between their decisions to eat locally grown food and their consequential ecological impact.

**Methodology/Timeline**
Initially, the students developed a plan to add an entirely locally produced food item to the café menu. After discussing the venture with the café manager, Daryl Ross, the students decided that an advertising campaign informing customers about the food they were purchasing would be more suitable for the café than introducing a new menu item. The reasoning behind the decision was that FSM already used a large amount of local and organic ingredients in its food. However, since these important facts were not properly advertised, the customers did not know that they are eating relatively environmentally friendly meals. Thus, the focus of the project shifted towards putting informative labels on the menu next to certain food items to inform buyers that said food contains a certain amount of local or organic ingredients. To do this, the students designed images of farmers (shown below) to be placed beside each menu item containing greater than 75% local or organic ingredients. Additionally, an idea was proposed to post a sign next to the menu explaining the meaning of the farmer images on the menu and the importance of eating local food. Lastly, the students wished to survey the café customers to determine whether or not the advertisements affected their purchase choices and later present the survey results to the café manager.

The students also participated in a tabling effort (by holding regular office hours) with the building interns to educate occupants on broader environmental issues such as composting and energy saving tips. They also conducted a lighting audit in Moffitt Library for the infrastructural component of the project to gauge a general idea of the overall energy usage in the building.
Farmer Image

Stakeholders Involved:

Café Manager:

Daryl Ross dwr@stradagroup.com

Food Producers/Distributors:

CAFF (Community Alliance with Family Farmers) (530) 756-8518

Full Belly belly@fullbellyfarm.com

RiverDog Farm (530) 796-3802

Firme Farms (510) 593-3427

Results

By researching for this project, the students discovered that there is an abundance of local and organic food produced in the Bay Area. Furthermore, many of these organizations are very willing to experiment with new ventures. 90% of the organizations surveyed or contacted for this project said they would be interested in delivering food to FSM Café in UC Berkeley. However, the students also discovered how certain organizations like the café could be
resistant to change. The café owner was much more interested in increasing advertising for products he already had rather than providing new products. This resistance probably stem from both fiscal fears and the stress of changing a successful business model.

However, the project has still been a success. The flyering and tabling campaign has brought awareness to composting practices and the presence of energy related issues in every aspect of an individual’s life. For example, taking the elevator does not simply benefit an individual lacking exercise practices; the simple action has profound effects on reducing unnecessary energy consumption. After these types of facts are brought to peoples’ attention, it is likely that they will have a deeper understanding and awareness of how environmental issues permeate their daily lives.

Additionally, the project has directly promoted awareness of local and organic food amongst Berkeley students. Even though a new “local” product was not be added to the menu as a result of this project, the various local and organic products already present on the menu will be brought to customers’ attention through the advertisements that will be implemented Fall 2010. This new tactic still achieves the original goals of raising awareness of how local food can be affordable, available and delicious. Thus, it is clear that the project has succeeded in raising momentum in the struggle to bring student attention to the environmental aspects of food purchasing.

Finally, the results of the lighting audit showed that Moffitt library was using relatively energy efficient lights (e.g. T-8 fluorescents and Compact Fluorescent Lights). However, the students found that many areas were overlit or had lights left on while the room was not being used.
Future Recommendations

The students originally wanted to add an entirely locally produced item to the menu at FSM. To do this, they identified potential sources of local food: Community Supported Agriculture (CSA) farms, farmers’ markets, and distributors (middle men between farms and vendors). These sources were found online through the site www.ecologycenter.org. Next, these sources were contacted to determine their interest level as well as which products they could supply throughout the year at reasonable prices (see http://www.fullbellyfarm.com/crops_timeline.html for an example). This information was then relayed to the FSM café manager to determine his level of interest in the project. Although he was interested, he decided that an advertising campaign was a more feasible project at the time (in the face of a grave budgetary crisis). Thus, the students advise that future students attempt to initiate the original project once the advertising campaign has been fully completed. Further, surveying should be done of FSM customers to determine whether or not the farmer icons impacted their purchasing decision due to their increased knowledge about the local and organic ingredients.

The most challenging aspect of the original project was to find a reliable and affordable source of local food. Although the students found multiple sources, it was difficult to ensure that any particular one would be a good fit for collaboration with the café. Thus, it would be best to get as much information as possible on each source and then have the café manager decide which ones he would like to speak with about business details.
Additionally, in the meeting with the café manager, he expressed deep interest in three other, environmentally friendly future ventures. First, he wanted to put up a permanent signage area located by the FSM line or in front of the café doors. This spot should be filled with signs promoting new eco-conscious practices and foods related to the café. Additionally, there would be information comparing the various effects of local, organic, and industrial food on the environment. To accomplish this, the current building manager of Moffitt should be brought into the project to ensure that the signs are not removed by library staff, as has happened in the past. Secondly, the café manager would like to collaborate with the student organic gardens in order to incorporate student-raised food into FSM meals. To achieve this, Miguel Altieri must be contacted (email: agroeco3@berkeley.edu) to ensure cooperation and to coordinate a crop plan suitable for the café. Third, the café manager wants to take whatever steps are necessary to convert some of the grass surrounding the café into an edible garden. The products of the garden would contribute to meals at the café, and the food waste of the café would go towards compost piles for the garden. To do this, a proposal for land-use change must be submitted to the Cal Space Allocation Committee. Furthermore, the current Victory Garden campus group could be brought into the project to supply the tools and knowledge.

Lastly, considerable de-lamping projects must take place in Moffitt to reduce unnecessary over-lighting and energy wastes. The bathrooms should have occupant-sensor lighting installed to reduce the occasions when lights are on although the bathroom is not in use. Finally, IST should be contacted to change lighting settings so that all lights are turned off at night when the cleaning crews do not need them anymore.
Moffitt Waste Audit Narrative

We conducted the waste audit from 4 to 6 pm on October 30, 2009, at the north side of Moffitt Library. There was one dumpster for paper and cardboard recycling and two dumpsters for general waste. For the already segregated waste we found that the majority of it by weight was cardboard, 90%, and after that it was mixed paper, 9%. Unfortunately, what we found there was not a wide variety of materials being recycled currently in Moffitt. Additionally, 1% of the segregated waste was non-recyclable plastic packaging. However, some of it was biodegradable, which is something that can possibly be expanded in future use. For the non-segregated waste the majority, was restroom waste. We did sort a small portion of this before we became aware of its origins. Since the bags were clear we could see that there was a great deal of paper towels, as would be anticipated from a restroom, but there was also a lot of other types of waste, such as coffee cups, water bottles, mixed paper, food, etc. It should be noted then, that the numbers we have for our waste audit for what we did sort are most likely well below actual percentages because this major portion of waste was not thoroughly evaluated. From weighing the restroom waste we found that the average weight of each bag was 8.8 lbs. We then speculated that there were about fifteen bags of restroom waste per dumpster, meaning that the total amount of restroom waste present during our audit was 264 lbs. The large amounts of non-restroom affiliated waste, we found seemed to suggest that there are not enough trashcans and/or recycling/composting facilities located within Moffitt Library.

Building Sustainability at Cal recommends that the building look for opportunities to reuse cardboard in technical services, improve paper and bottle and can recycling rates, and look to installing more compost stations throughout the building.
Moffitt Unsegregated Waste Audit Results

- Paper Towels: 19%
- Food Waste: 17%
- Non-Compostable Food Packaging: 7%
- Compostable Food Packaging: 9%
- Coffee Cups: 11%
- Liquid Waste: 6%
- Mixed Paper: 9%
- Cardboard: 4%
- Recyclable Plastics: 4%
- Non-Recyclable Plastics: 6%
- Scrap Metals: 1%
Moffitt Technical Services Water Audit

Emily Alter
Sruti Bharat

The purpose of doing the water audit in the Technical Services Unit of Moffitt Library is to gauge what is leaking, what needs to be replaced, and recommend what improvements to make. We met with Miguel, building manager of Moffitt Library, who let us into the Technical Services division to do the water audit. There are only two bathrooms and we conducted the audit according to the usual procedure. All the aerators are 2.0 or 2.2 gpm. One woman who was in the restroom as we walked in asked us to inform the authorities that the water is yellow in the mornings at the beginning of the week. Many of the toilets are unlabeled, and they seem quite old, so it is questionable whether we can assume a 1.62 gpf. Most of the toilets and urinals took much longer than the standard 4 seconds. The aerators can easily be replaced with 1.0 or even .5 gpm aerators. It seems that most of the toilets leak. Out of 17 toilets and urinals, we identified 9 as potentially leaking. We will recommend to Miguel that he check the efficiency of these toilets, whether or not Technical Services is slated for renovation.
Moffitt Library Sustainability Plan of Action

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I. Short-Term
   a. Structural/Operational Changes*
      i. Bring Your Own Utensil Campaign
         1. Three Incentives:
            a. Have FSM cafe offer daily discounts to customers who
               bring in their own mug, bowl, plate, or silverware.
            b. Give raffle entries to participants in the Utensil
               Campaign. Examples of monthly raffle prizes include
               FSM discounts and Klean Kanteens®.
            c. Have a monthly ‘Free Coffee Day’ for people who bring
               in their own mug.
         2. Funding: FSM cafe’s discounts would be reimbursed through
            the decreased cup, lid, plate, bowl, and utensil costs.
            Furthermore, the drop in initial revenues would be paid for by
            the free cafe promotion done by BS@C through the campaign.
      ii. Entirely-Local Meal at FSM cafe
         1. Put one item (most likely a salad) on the menu at FSM made
            entirely from local produce. Advertise it as a “Bay Area Local
            Salad”.
         2. Work with the Berkeley Student Cooperatives located in close
            proximity to the campus which already have large quantities
            of local produce delivered to them at cheap rates. Another
            potential partner is the Community Alliance with Family
            Farmers (CAFF), an organization that has a warehouse in
            Oakland and wants to work with the cafe.
         3. Funding: If this venture requires funding (i.e. there is a profit
            to cost gap resulting from the local item), the Green Initiative
            Fund could provide capital.
      iii. Install Occupancy-Sensor-Activated Lighting in Bathrooms
         1. Install lights that turn on and off based on the presence of
            occupants in the bathroom.
      2. Work with Physical Plant- Campus Services (PP-CS)
iv. Install Task Lighting instead of Overhead Lighting
   1. Install task lights that occupants can manually control so the overhead lighting does not have to be turned on all day long
   2. Work with Physical Plant- Campus Services (PP-CS)

v. Create Re-Use stations
   1. Delineate locations where people can drop off things they no longer want or use that can still serve some purpose for others.
   2. Items can range from clothing and furniture to one-side clean paper
   3. Consider renaming the areas “Free Piles” rather than “Re-Use stations” because that terminology may be to understand.
   4. At the end of each year, left over items could be donated.
   5. Funding: None necessary. Just need a location where items can be stored neatly.

vi. Replace Lights
   1. Do a cost-benefit analysis to determine whether replacing the T8 lights that are abundant in Moffitt with T5 lights is a feasible project or not.
   2. Work with Physical Plant- Campus Services (PP-CS)

vii. Recycling bins
    1. Make sure the entryway lobby has properly labeled recycling bins.
    2. Funding: Work with Campus Recycling and Refuse Services (CRRS) and Building Management to acquire bins and obtain proper signage. If more funding is necessary, TGIF could be contacted with a grant application.
    3. Work with custodial staff and CRRS to ensure bins are being picked up and materials are properly disposed of.

viii. De-lamping fixtures
    1. De-lamp fixtures in heavily lit areas.
    2. Work with Physical Plant- Campus Services (PP-CS)

b. Education
   i. Educational Signs about Stairs vs. Elevators
      1. Put up signs inside elevators that detail the reasons (energy, exercise, and others) why people should use the stairs instead of the elevator.
      2. Put up signs in the stairwell detailing why using the stairs makes a difference.

   ii. Put Up Educational Stickers
       1. “Turn the Lights Off” stickers above light switches, especially in bathrooms.

   iii. Inkjet/Toner Cartridge Recycling
1. Provide toner cartridge recycling envelopes and instructions on how to recycle toner cartridges
2. Acquire inkjet cartridge envelopes from CRRS.

iv. Change computer settings
1. Change computer settings so that computers hibernate or are on ‘Energy Saver’ mode in between use.
2. Work with IST and individuals to change computer settings
3. Also work with IST to get the computers shut off during nights

v. Report Leaks Campaign
1. Educate building inhabitants on importance of reporting leaks and how to report them.
2. Create signage and send out information via e-mail

vi. Present to Safety Coordinators
1. Make a presentation to safety coordinators in the building that informs them about Building Sustainability at Cal and how they can help make Moffitt more “green”

vii. Reduce Junk Mail Campaign
1. Provide URL or hard copy of form that people can fill out to reduce the amount of junk mail they receive.

viii. Building Inhabitant Surveys
1. Administer surveys that explore the habits and practices of building inhabitants. Have questions pertaining to energy, consumption, water, awareness, food, and transportation.
2. Repeat surveys every year or so because habits will change.
   *** Moffitt renovations will also change the building and how occupants interact with it.

II. Long-Term
   a. Structural/Operational Changes*
      i. Install Living Roof on Moffitt
         1. Initiate a project to grow plants in soil or hydroponically on the rooftop.
         2. If the roof cannot sustain much weight, crops with small root systems should be grown so a minimal amount of soil would be necessary.
         3. Funding: From CNR or other environmental departments, local sustainability grants, revenues from produce grown on roof, TGIF
      ii. Install Solar Panels on Moffitt Roof
         1. Research Solar Panel types, pricing, and government/PG&E rebates
         2. Funding: local sustainability grants, rebates from government and utilities, revenues from decreased electricity costs, TGIF
         3. Work with Physical Plant- Campus Services (PP-CS)
      iii. Cover Roof With More Reflective Surface
1. Increase the albedo of the roof by painting it white or with a reflective sheen to reduce the absorption of incoming heat from the sun.
2. Funding: local sustainability grants, government incentives, TGIF

iv. Dual-flush Flushometers
1. Replace regular flushometers with dual-flush flushometers
2. Ascertaining feasibility of installing flushometers in bathroom
3. Determine Return on Investment (ROI) for installing flushometer.
4. Sloanvalve.com has many products
5. Create signage to encourage proper use of new flushometers and create awareness.
6. Funding: Get grant through TGIF to pay for flushometers and work with PP-CS to provide labor.

v. Waterless Urinals
1. Replace regular urinals with waterless urinals.
2. Ascertaining feasibility of installing waterless urinals in bathrooms.
3. Determine Return on Investment (ROI) for installing urinals.
4. See sloanvalve.com
5. Create signage to encourage proper use of new urinals and create awareness.
6. Funding: Get grant through TGIF to pay for urinals and work with PP-CS to provide labor.

vi. Green Cleaning Chemicals
1. Work with PP-CS to switch to Green Seal Certified Cleaning Chemicals.
2. Do survey of building inhabitants and custodial staff to determine effectiveness of products.
3. Provide information to occupants to raise awareness of the new cleaning chemicals.
4. Funding: Work with PP-CS

vii. Composting
1. Start composting programs for paper towels in bathrooms.
2. Link with FSM to coordinate with their composting program
3. Funding: Work with Alameda County Waste Management Authorities to partially fund composting program. Also coordinate with building management to acquire the rest of the funding.

viii. Environmentally Preferable Purchasing
1. Work with purchasing manager to look at more environmentally friendly alternatives to current products.
2. Work with labs and offices to create demand for more environmentally friendly alternatives

x. Lighting Replacements
   1. Though the Classroom Extension is not part of the ongoing renovations, the lights (mostly T8’s) should be replaced with T5’s when possible.
   2. In general the lights in the new Moffitt Library should be the most efficient, T5 fluorescents.

x. Water
   1. The bathrooms in the Classroom Extension universally seem to leak. There also does not seem to be an aerator standard. All new sinks should be refitted with .5 gpm aerators. Leaking toilets have been flagged and the building manager, Miguel, will be alerted.
   2. Architects should consider installing “Insta-hots” into all the sinks. *Research needed

b. Education
   i. Sustainability Committee
      1. Help create a sustainability committee in the building to discuss further ways to reduce the environmental footprint of the building and gain support for the program.
   ii. Better signage throughout the building indicating clearly to people what can and cannot be recycled in blue bins (because people are seriously confused or just don’t want to think about it).
   iii. Better signs in FSM and eventually the entire building (maybe) about what things can be composted with maybe a little blurb about what composting is and why it’s good.
   iv. All restrooms would have educational signage explaining the purpose of the new fixtures (low-flow toilets and high efficiency sink aerators) with quick facts about the benefits of each installation. This will ease the learning curve, and help users to be more receptive of these new fixtures.
   v. Continued outreach provided by the interns who will continue to work in the building throughout the spring semester; they’re a resource for staff who want to remain updated on BS@C’s progress in Moffitt.

III. Continuous
a. Structural/Operational Changes*
   i. Replace Grass Around Moffitt with a Vegetable Garden
      1. The grass surrounding Moffitt is rarely used and thus should be converted entirely or partially into a large garden.
      2. Food can go to FSM cafe, Berkeley students, and soup kitchens
3. The Victory Garden group can tend to the garden or another student group can run it.
4. Funding: ASUC can fund it since it will be maintained by a campus club

b. Education
i. Set up a Moffitt Building (Or Campus-Wide) Ride Share program
   1. The Ride Share can initially focus on just employee/staff/student carpools to and from campus.
   2. Craigslist could potentially be engaged in this venture
   3. Funding: None necessary. Only time is required to set up the website

ii. Sustainability Newsletter
   1. Post a biweekly sustainability newsletter in toilet stalls and online to inform building inhabitants about general sustainability issues and how they can change their behavior to reduce their ecological impact.

iii. Green Champions
   1. Provide prizes for people in the building who are making an effort to reduce their impact through recycling, water conservation, or other criteria.
   2. Funding: Work with building management

iv. For people continuing to work in the building in future semesters, we recommend they conduct a waste audit in the beginning of the semester and after implementing a recycling or composting system in the building, conduct another waste audit at the end of the semester to compare.

v. Most of the waste from the building comes from bathrooms, which we were not able to fully assess because it is considered a health hazard. This skewed our waste audit results, which are most likely at higher levels than what our data shows. This is an important area with a high potential of improvement.

vi. Staff is receptive to new ideas and possibilities, judging by our Brown Bag Lunch. We recommend organizing a more permanent liaison with students working in the building and permanent occupants who are interested in improving Moffitt’s sustainability—for example, creating a Green Committee.

vii. Conducting an accurate water audit is very difficult with a large transient population that uses the bathrooms, which characteristic of a library. In addition, the second floor is not accessible to students so it is important to properly coordinate the timing of water audits with the building managers.

viii. While FSM is an integral part of Moffitt’s identity, it is independently owned and thus implementing changes to any aspect of its operation would have to go through a different chain-of-command.
ix. From our survey, we found that most of the transient populations are not aware of the impending renovation of Moffitt Library. Further outreach methods should include increasing awareness of this renovation.

*It is critical that all of the structural/operational changes also have an educational component to them to ensure proper use of technologies and ongoing sustainable behavior.

Expanded Plans:

I. High Albedo Roof Coating
   a. Coat the roof with a high albedo reflective substance
   b. The roof is approximately 28,000 square feet
   c. Example of Costs:
      i. Assume use of ArmorPoxy’s ArmorRoof coating (armorpoxy.com)
      ii. One gallon covers 100 square feet
      iii. Thus, (28,000 sq ft) (1 gal./100 sq ft) = 280 gallons required
      iv. At $3,149.00/50 gallons, total predicted cost is $18,894
      v. Federal rebate of 60cents/sq ft makes actual cost = $2,094 (not including hourly wages of installation)
   d. Savings:
      i. A Central Air Conditioning Unit generally uses around 3500 Watts
      ii. Calculate savings assuming the Air Conditioning is used 15 hours/day, 25 days/month and at 13 cents/KWh
   e. Funding:
      1. TGIF
      2. Local Sustainability Grants
      3. Savings from reduced air conditioning expenses during warm weather
   f. If cost is still too high, a simple coat with regular white paint would also be beneficial as an alternative.

II. Replace Grass Around Moffitt with an Edible Garden
   a. There is approximately 20,000 square feet of grass surrounding the building.
   b. Of this 20,000 sq ft, approximately 80% is sloped land and would thus require terracing.
   c. The land is currently just grass. Half the land could be left for sitting and the rest be turned into an educational garden where edible plants are grown
   d. Costs: Tools, seeds, plants, trees, compost, terracing materials (wood, stones)
      i. The Victory Garden already on campus, which is currently being forced off campus, could supply much of these necessary resources.
      ii. Victory Garden and its group could be put in charge of the Moffitt Garden, thus making all labor in creating the garden completely voluntary.
   e. Potential Income: produce could be sold to FSM cafe
f. Potential Yields: Winning gardens could generate up to 4.5lbs of produce per square foot. Assuming the initial gardens to be at a beginner level, predict only 1.5 lbs per square foot would be generated.
   i. Refer to the following website for more information: http://www.google.com/search?q=cuba+production+per+square+foot&ie=utf-8&oe=utf-8
   ii. Assume 10,000 square feet are gardened. This could produce 15,000 lbs of produce.
   iii. Assume the average salad at FSM cafe requires 3 lbs of produce to make. This means that 5,000 salads could be produced from the garden and at $6/salad this translates into $30,000 worth of food. (most salads cost more than $6, but the $6 figure was used because other factors such as dressing also go into a complete salad)

g. Sources of Aid: College of Natural Resources, Miguel Altieri, Urban Agriculture Students, Student Organic Garden Association

h. The Space Allocation Committee (SAC) should be contacted to determine feasibility of this project
   i. Phone: 510-642-1781
   ii. Address: 641 University Hall

i. Funding: TGIF

III. Recycling Bins
a. Take an account of existing bins.
   i. Go to every floor and see if recycling bins already exist.
   ii. Talk to CRRS to see what is accepted in these bins.
   iii. See if the current bins have any indicatory signage of what can be placed in them

b. Potential Locations of Bins
   i. Entrance of Moffitt on the 3rd floor between elevator and Information Desk
   ii. 4th and 5th Floors: Next to elevators and in every class room
   iii. 1st Floor: Next to elevator and in the computer lab

c. Educate
   i. Clearly label what can be placed in these bins and place large signs with information on the walls between the elevators and stairs on each floor.

d. Cost
   i. Only cost is the new bins and materials to make signs

e. Savings
   i. Much of Moffitt Library’s waste will be diverted and this will produce various environmental benefits (not necessarily monetary savings).

f. Future Expansion
   i. Have new bins that will allow for E-waste recycling and recycling of hazardous materials such as batteries, light bulbs, and printer cartridges.

Staff Lounge (Green Break room) Design Recommendations
I. Appliances

a. Energy Star rating for fridge, microwave, vending machine

b. In terms of water heating, we suggest an electric kettle, to be turned on whenever needed and unplugged after every use. The alternatives have certain disadvantages.

   i. Water heater: stays on all day

   ii. Gallon jugs that have a “red switch” – these are not very hot and end up needing microwaving

II. Lighting

a. Natural daylight if possible

   i. It is possible to include natural daylighting in these sorts of rooms through different canister skylight systems that exist. Might already be included or a recommendation to make to the architects

b. No more incandescents!

c. Occupancy Sensors: We do not suggest an occupancy sensor

   i. The issue with occupancy sensors in rooms like these is, if this is where the water sinks are, for example, then these rooms will get a pretty regular flow of people who are not in the room for very long periods of time – the lights will remain on for too long

III. Employee Participation

a. Bring your own utensils/reusable mugs

b. Reusable towels? Problems with this – who washes them. In the Promenade’s “green breakroom,” one lady voluntarily washes everyone’s towels. This may not be very feasible.

c. Education campaigns: posters, sustainability tips, a sustainability board

   i. There should also be a bulletin board included for notifications about meetings and other things going on in Moffitt

IV. Composting and recycling
a. Signs for recycling, prominent!

b. Food composting

V. Furniture

a. Good to include both an eating and a relaxation space – tables and chairs, couches

   i. These should be SMaRT (Sustainable Materials Rating Technologies) or some other certification

   ii. Should be ergonomic