

# LEED

for

## EXISTING BUILDINGS

### The Franklin Building, UC Office of the President

Environmentalists rally behind it, businessmen are embracing it, and it's changing the construction industry at a staggering pace. It's even spawned legislation in fifteen states and forty-nine cities across the U.S.

The acronym LEED® stands for Leadership in Energy and Environmental Design, and it is now a staple in any discussion of the built environment. The U.S. Green Building Council (USGBC) first revealed this major contribution to the contemporary environmental movement in 1998. Since then, LEED has become the industry standard for rating buildings on environmental impact, sustainable features, and energy efficiency.

LEED operates by offering a different rating system for different building types. The USGBC is continually developing new systems to cover an ever-larger scope of projects. Within each system, buildings

are certified based on the number of points received for various sustainability achievements, with Platinum denoting the highest rating followed by Gold, Silver, and Certified.

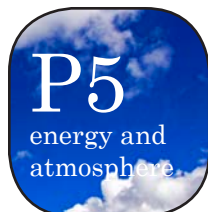
The system boasting the majority of certified projects is New Construction, or LEED-NC. But sustainability and potential cost savings do not stop once a building is constructed. To address this, the USGBC developed LEED for Existing Buildings, or LEED-EB. This system greens a building's operations and maintenance procedures so it can perform to environmental standards over its entire lifetime. It also enables building owners to continually reap the cost savings associated with improved building operations.

In recognition of the widespread environmental, economic and health benefits of sustainably maintained facilities, the University of California President issued a

Policy on Sustainable Practices in March 2007. The policy requires all UC campuses to begin adopting sustainable operations and maintenance practices and submit one pilot building for LEED-EB certification by July 2008.

Before adopting this policy for the entire university system, the UC Office of the President (UCOP) performed a pilot LEED-EB project on its own headquarters. The Franklin Building, located in downtown Oakland, was selected to undergo operational changes and provide UCOP with hands-on understanding of the LEED-EB compliance, documentation and certification process. This case study details the actions UCOP took to improve the building's performance, and offers guidance to help other campuses complete a successful LEED-EB project.

This document begins with a description of the initial steps UCOP took to engage



occupants and building management in the LEED-EB process. It is then organized into the six LEED-EB credit categories. Each category begins with a survey of the existing conditions at the Franklin Build-

ing. A brief synopsis of the general LEED-EB action plan for that category follows. Selected credits are then examined to provide pertinent information that evolved out of the UCOP project. A breakdown

of costs and savings concludes each credit category. Contact information, acknowledgements, and a complete checklist of the credits pursued and achieved by the Franklin Building are also provided.



**PERHAPS THE** most valuable lesson to emerge from the Franklin Building project is the importance of drawing together stakeholders and creating a network of “sustainability champions” early in the project timeline. UCOP found that taking these preliminary actions was crucial to determine clear goals, delegate responsibility, and create both top-down and bottom-up channels of communication.

Bringing stakeholders together for discussion is necessary to actively involve key players and set realistic project goals. The LEED-EB project manager, building manager, energy manager, grounds manager, and a representative from Environmental Health and Safety, Purchasing, Campus Planning, Custodial and Recycling Services should all be present. The stakeholders should discuss which credits are easy to achieve, difficult to achieve, and impossible to achieve given the institution’s existing practices, budget, and environmental values. While this initial credit evaluation is not set in stone, these meetings will establish a roadmap and a timeline for the project to follow. Stakeholder meetings can also be used to determine the credits that fall under each individual’s purview. This not only serves to delegate responsibilities clearly, but also helps to form a cohesive project team that shares the common goal of achieving building certification.

While stakeholder meetings are useful for gaining administrative support for LEED-

EB, creating a network of sustainability champions is crucial for generating support from building occupants. Forming a Departmental Sustainability Coordinator Program at the Franklin Building enabled



occupants to become directly involved in the LEED-EB process. Members of the Program performed extensive outreach with their departments, raising general awareness of and support for the LEED-EB project and its associated operational changes.

The Sustainability Coordinator Program was comprised of at least one represen-

tative from most departments, including a number of departments located in other UCOP buildings. Inviting off-site departments to participate created a mechanism for extending the sustainable practices implemented at the Franklin Building, thereby increasing the project’s impact.

Members attended bi-monthly meetings to learn about the sustainable practices being planned for implementation, and offer their suggestions for improving the environmental and human health performance of the building. The Coordinator Program proved to be extremely valuable for facilitating effective top-down and bottom-up communication. In addition to disseminating information through each department’s internal communication channels, the Coordinators gathered feedback and new ideas from their departments to share with the project team.

The Coordinators played a central role in improving the Franklin Building’s environmental performance in several areas. They showed exceptional dedication to achieving LEED-EB credits that address waste reduction. The Coordinators identified improvements to the building’s recycling





program and trained colleagues on the proper use of new recycling and composting bins. They also contributed significantly to source reduction by educating their respective departments about paper use reduction and programs to exchange surplus materials between departments.

Involving both management and building occupants in the LEED-EB process will not only facilitate a smoother and more successful project, it will help ensure the longevity of sustainable practices. A large part of institutionalizing sustainability depends on the willingness of the building

community to embrace the procedures and goals established in the LEED-EB process. Achieving buy-in at all levels, therefore, will help guarantee that LEED-EB practices are sustained after the plaque is on display.



**THE FRANKLIN** Building was built in Oakland's dense urban center in 1998. The building is conveniently located just one block from a BART station, the Bay Area's high-speed rail service. BART public transit facilitates commuting to and from several major cities including San Francisco and Berkeley, and also provides services to the San Francisco and Oakland International Airports. An extensive network of bus lines also serves the area. To further encourage the use of alternative transportation, bicycle parking and showers are available for occupants. Given the dense downtown location and the availability of established public transportation, underground parking is provided for under one third of building occupants.

The Franklin building has no green areas along the building-street border to maintain, however there is a small rooftop garden over the fifth floor. Employees can step outside for lunch or host small meetings in the garden, which is positioned away from the street to reduce exposure to noise and exhaust.

## LEED-EB Actions

Due to its auspicious location, many of the Sustainable Sites credits were achieved by

documenting the existing building and site conditions, and did not require any operational changes. The garden, however, provided an ideal opportunity to incorporate sustainability into the management of the grounds through the implementation of a Green Site Management Plan.



## SSc1.1

Greening UCOP's landscaping practices required updating the contract with the landscaping company, Cagwin & Dorward. In the new contract, brooms and shovels have replaced the leaf blower and gas-powered soil tiller. All conventional fertilizers are now banned from the garden. Instead, compost and mulch are applied once each year, followed by the release of

earth worms. Roundup and other forms of chemical weed control have been exchanged for least-toxic pesticides. All green waste generated by the garden, about two cubic yards per year, was already composted under the terms of the original contract and will continue to be sent to Biofuel Systems in Livermore, California.

## Cost & Savings

The only cost associated with the Sustainable Sites credits pursued by the Franklin Building is \$800 annually for switching from fertilizer to a compost application. There have been no pest outbreaks since the Green Site Management Plan was put into practice, marking a successful beginning to a new way of caring for the garden.





# Water Efficiency

**ALL RESTROOM** and kitchen fixtures in the Franklin Building meet the water conservation requirements established by the Federal Energy Policy Act of 1992. This policy sets minimum water efficiency requirements for all fixtures manufactured in the United States. The performance standards help ensure that most products on the market will reduce water consumption. The maximum flow rates set by the policy are 1.6 gallons per flush for toilets, 2.2 gallons per minute (gpm) for sink faucets, and 2.5 gpm for showerheads.

Relatively little water is applied to landscaping as the building has no lawn or exterior vegetation and only a small rooftop garden. The irrigation schedule for the garden is monitored and adjusted depending on levels of seasonal rainfall. During the LEED-EB performance period the East Bay Municipal Water District (EBMUD) performed a free irrigation audit to verify that the system was functioning properly. EBMUD also confirmed that the landscape was not being over-watered, and that the system was watering the plants and not the concrete.

## LEED-EB Actions

Given the Franklin Building's low landscape irrigation requirements, UCOP found the greatest water savings could be achieved by focusing conservation efforts inside the building.

## WEc3.1-3.2

UCOP replaced the 2.2 gpm restroom sink faucet aerators with very low-flow 0.5 gpm faucet aerators. These devices effectively

maintain water pressure and reduce the flow by mixing air into the water stream. By simply replacing faucet aerators in its restrooms, the Franklin Building's overall water consumption has dropped by over 20 percent according to the LEED-EB template calculator.

## Cost & Savings

The water savings achieved at the Franklin Building required no capital investment. EBMUD's Conservation and Recycling Department provided sixty-four aerators at no charge. There have been no complaints from building occupants and no problems with the faucet aerators since the replacement.

Buildings constructed in California before 1992 that are participating in the LEED-EB program will most likely need fixture upgrades to comply with WE Prerequisite 1. However, selecting highly efficient fixtures can be a cost-effective investment that reduces both water and sewer bills. Significant rebates are available statewide for residential and commercial customers to help offset the cost of purchasing and installing water-efficient fixtures.

For more information regarding free water-saving devices available through EBMUD, please visit [www.ebmud.com/conserving\\_&\\_recycling/conservation\\_devices/default.htm](http://www.ebmud.com/conserving_&_recycling/conservation_devices/default.htm). If you are not in the EBMUD service area, check with your local water utility for conservation programs and incentives that can be applied in your building. UCOP recommends contacting your water utility before purchasing any products to ensure your fixtures of choice qualify for a rebate.

**more h2o saving ideas:**

**FOR BUILDINGS WITH LANDSCAPING**

- 1 install drip irrigation and consider using a system equipped with moisture sensors
- 2 use mulch in landscaping to prevent water loss
- 3 install a gray water system to reuse waste water on landscaping

**P4**  
water efficiency



# Energy and Atmosphere

**THE FRANKLIN** Building was certified as an Energy Star building in 2003. While this was a straightforward process for a high-rise office building, campuses should be aware that the Energy Star Portfolio Manager does not address all building types.

UCOP is committed to purchasing renewable power that meets the requirements of Green-e, a leading renewable energy certification and verification program. To this end, the Franklin Building procures direct access electric commodity from Arizona Public Service Energy Services (APSES). UCOP's contract with APSES requires that 17 percent of its electricity is Green-e certified. The contract also calls for increases in the percentage of renewable energy over time. Electricity distribution is provided by the Pacific Gas and Electric Company, which is also the building's single source of gas procurement and distribution.

## LEED-EB Actions

Lacking a consistent building operations staff during the LEED-EB process reduced the number of EA credits the Franklin Building could pursue. However, significant energy savings will be achieved through the implementation of a monitoring-based commissioning program (MBCx).

The program has the goal of reducing electricity use by 5 percent and gas use by 3 percent. Enhanced metering will capture utility data at regular intervals throughout the day, giving staff immediate feedback on the building's energy consumption. This feedback will enable staff to maintain the building's energy conservation goals.

## EAc1.1-1.7

The Franklin Building was able to increase its energy efficiency and raise its Energy Star score by making a few simple changes during the LEED-EB performance period. First, the building engineer optimized the HVAC schedule and eliminated one hour of operation daily without negatively impacting the building's indoor air quality. Second, the engineer eliminated the use of the building's second boiler. Third, the Sustainability Coordinators worked with their departments to encourage employees to turn off their computers and monitors every evening.

## EAc2.1-2.3

The Franklin Building increased its purchase of Green-e energy from 17 percent to 45 percent in support of the clean energy and climate protection goals in the UC Policy on Sustainable Practices.

## Cost & Savings

It cost \$4,368 to increase UCOP's renewable energy purchases from 17 percent to 45 percent for one year plus the three month LEED-EB performance period. The MBCx project cost \$69,680 to implement. The UC/CSU/IOU Energy Efficiency Partnership Program, which is available to all UC and CSU campuses, provided \$45,380 to help fund the project. The annual utility cost savings are anticipated at roughly \$26,500, giving the project a simple payback of less than three years. However, taking the utility incentive money into account lowers the project's payback to less than one year.

## WHAT IS MBCx?

Monitoring-based commissioning, or MBCx, is a process that addresses energy inefficiencies in a building and provides a roadmap for continual operational upgrades.

**FIRST**, a building undergoes a complete review of its operations and submetering equipment is installed. Metering a building at this level allows for detailed analysis of energy use and lays the groundwork for a continuous commissioning program that institutionalizes the goal of high energy efficiency.

**SECOND**, facilities staff take part in retro-commissioning training that will enable them to work directly with commissioning agents and prepare them to manage the building under a continuous commissioning program.

**THIRD**, a program is developed that will utilize the permanent metering and monitoring systems installed in the first step to ensure that additional retrofit opportunities are identified and the building continues to operate efficiently.



# Materials and Resources

**THE FRANKLIN** Building had a healthy recycling rate of 54 percent prior to the LEED-EB project. Each occupant was equipped with a personal desk-side recycling can and a smaller, hanging trash bin that attached to the side. Despite the building's high recycling rate confusion remained over which bin was designated for recycling and what items qualified for the recycling program, as both bins were black and neither had signage.

Procurement of office supplies was managed at the departmental level with no overarching policy for the purchase of sustainable items. Some departments purchased 30 percent post-consumer recycled content paper, however this effort was not uniform throughout the building. A rigorous furniture reuse program has been in place at UCOP for several years. UCOP's unwanted computers, monitors, phones and other equipment are sold, donated or recycled by UC Berkeley's Excess, Surplus and Salvage, a program responsible for disposing of excess university property.

## LEED-EB Actions

UCOP pursued all but two credits in the Materials and Resources category, showing a great commitment to making operational changes and integrating these new practices into building policy.

### MRc1.1 – 1.2

The Franklin Building's new waste management policy stipulates that 75 percent of all construction waste must be diverted from landfills and incinerators through re-use or recycling. A system has been

implemented to help vendors maximize recycling rates and ensure compliance with the policy. In this system, all vendors are required to fill out a Waste Management Form. The form clearly states the vendor's responsibilities and outlines the waste diversion information required for payment.

In the new system vendors must catalog all anticipated waste by type and weight, and identify appropriate channels for recycling before beginning a project. Waste that will be landfilled must also be identified. Any vendor seeking an exception to the 75 percent minimum diversion rate must submit an explanation to UCOP and receive written approval before beginning the project. Vendors must also obtain a receipt from the recycling facility with the tonnage listed for each material. A project is considered complete only when this receipt is submitted to UCOP.

### MRc2.1 – 2.5

A new purchasing policy was implemented at the Franklin Building to address the sustainable procurement of office paper, office equipment and supplies, and furniture. Sixty-eight percent of the building's total purchases now qualify as green under the criteria set by the LEED-EB letter template. However, this number under-reflects the true level of green purchasing. Some departments procure copy machine paper from University of California Printing Services, all of which is 30 percent recycled content. UC Printing Services could not provide the exact amount of paper used during the performance period, which prevented these purchases from being included in the LEED-EB calcula-

tions. In spite of this, the Franklin Building received an additional credit for its exemplary commitment to green purchasing in the Innovation in Upgrades, Operations and Maintenance category.

The LEED-EB implementation team performed extensive paper testing to encourage the departments purchasing virgin office paper to switch to recycled-content paper. Product testing was important to help the departments find an acceptable alternative, thereby ensuring they would continue to purchase recycled-content paper.

In the paper testing exercise, employees were asked to look at five sheets of paper marked with only a number. The choices included the department's current virgin paper, Boise 30 percent and 100 percent recycled content paper, and two additional 30 percent papers of varying brightness. Employees were first asked which paper they would prefer not to use. Participants generally discarded the sheets that did not match the brightness of their existing paper. Participants were then asked to choose their preferred paper. The products favored most often were the 30 percent and 100 percent post-consumer recycled content paper manufactured by Boise. In fact, employees chose these two sheets more often than the virgin paper. The 30 percent recycled-content paper





was ultimately selected as the most feasible alternative by nearly all participating departments.

To prevent cost from deterring any departments from replacing their virgin paper, UCOP's Strategic Sourcing department negotiated the same price for Boise 30 percent post-consumer recycled content paper as for Boise virgin paper under a contract with OfficeMax. At the end of the performance period, 80 percent of the building's paper purchases contained at least 30 percent recycled content.

## MRc4.1 – 4.2

Implementing a new green cleaning program illuminated the necessity of verifying product claims to guarantee that items fulfilled sustainability requirements. Inaccurate or misleading information regarding important green characteristics was found in both catalogues and websites. Obtaining proper documentation of products' environmental claims was crucial to ensure that items were truly sustainable and counted towards earning LEED-EB credits.

To comply with the green cleaning program the Franklin Building stopped purchasing Allstate clear plastic trashcan liners and began purchasing post-consumer recycled content liners made by Spectrum. The company's literature indicated that the bags complied with California law requiring post-consumer recycled plastic to comprise at least 10 percent of the product by weight. However, when the documentation was received from Spectrum it was discovered that the company's total product portfolio meets California law, but the liners being purchased by UCOP did not. As a result, those purchases could not be included in the credit submittal, and UCOP must continue its search for an acceptable trashcan liner. The LEED-EB implementation team strongly recommends securing all necessary documentation and double-checking the facts before the performance period to guarantee product compliance. For information on the building's new green cleaning program, please see Indoor Environmental Quality credit 10.3.

## MRc5.1 – 5.3

The waste stream audit performed for

MR prerequisite 1.1 revealed that paper towels constitute 30 percent of the Franklin Building's garbage by volume. A new composting program was developed to capture this material, as well as other soiled paper items and food scraps, to reduce UCOP's landfill contribution. Implementing the new program required not only the addition of composting bins, but a change in the building's approach to waste disposal.

First, the large kitchen trashcans were moved from their central location under the sink to another wall. This was done to compel employees to consider how a material should be disposed of rather than tossing it into the same familiar bin. Next, recycling and composting bins outfitted with clear signage were placed beside the trashcan. In addition to composting kitchen waste, paper towels generated in the bathrooms and pre-consumer waste from the café are included in the program.

To reinvigorate the building's occupant recycling program and facilitate proper sorting, all black desk-side recycling bins were replaced with blue bins. Color coding the bins gives an immediate visual signal differentiating the recycling bin from the trashcan. The bins are stamped with "Please Recycle Paper, Bottles, Cans" and the traditional recycling logo to eliminate any lingering confusion. The old bins were collected by the UC Berkeley's Recycling and Refuse Department for reuse in another building.

A necessary component of the Franklin Building's successful composting and recycling program was investing time in reeducating employees to stimulate a cultural change within the building. This was especially true for the composting program. With three bins in the kitchen to choose from and a new mindset required when throwing something away, it took several different forms of educational outreach before the bins were properly utilized. Some examples of outreach included attaching clear signage; making regular appearances at staff meetings to give presentations and answer questions; distributing informational handouts; and holding multiple training sessions for custodial staff in English and Spanish. In addition, informal outreach such as passing out Fair Trade chocolates to employees caught composting or recycling correctly

created a positive atmosphere and fostered collective group involvement in a shared goal.

Norcal Waste Service of Alameda County takes the majority of the compost materials generated by the Franklin Building to a facility in Vacaville. The finished compost product is distributed to local farmers and vineyards. A small portion of the building's compostable material is used by the East Bay Municipal Utility District in a renewable energy pilot project. The new composting program has raised the building's waste diversion rate to just over 60 percent.

## MRc6

The building's new low-mercury fluorescent lighting policy requires that interior and exterior bulbs have an average mercury content of less than 80 picograms per lumen hour. This policy allows some purchasing flexibility, because individual bulbs can exceed 80 picograms per lumen hour as long as the building's average remains below that rate.

The Franklin Building needed to find a new distributor in order to purchase the lower mercury Phillips bulbs required to comply with the policy. The switch unexpectedly resulted in substantial monetary savings. Depending on the type of fluorescent bulb, UCOP saves \$0.60 to \$10.00 per bulb.

## Cost & Savings

The new recycling and compost bins required a capital expenditure of \$4,086. The Franklin Building pays \$280 each month to have its composting materials collected. There is no cost increase associated with purchasing 30 percent recycled content paper, switching to indoor air compliant products, or requiring vendors to recycle construction and demolition waste. UCOP saves over \$5,000 each year by purchasing low-mercury fluorescent lights from a new vendor.





# Indoor Environmental Quality

UCOP RECOGNIZES that significant benefits for occupant health and comfort are attainable through indoor air quality protection. Prior to the LEED-EB project the Franklin Building had many procedures in place to safeguard indoor environmental quality (IEQ). For example, painting projects are scheduled for after hours on Friday to minimize occupant contact with fumes. In addition to operational precautions such as this, UCOP takes reports of discomfort seriously and immediately investigates complaints made by building occupants.

The Franklin Building uses a web-based building management system called iRequest to track requests and complaints regarding indoor environmental quality. The iRequest process creates a direct and efficient line of communication between occupants and facilities management. Additionally, the system maintains long-term documentation of issues and resolution strategies. Officially closing a submission requires the employee who entered the iRequest to provide his or her signature, indicating that the issue is resolved. This ensures that employee concerns are sufficiently addressed, and provides a mechanism for gauging occupant satisfaction with the solutions implemented by building staff.

## LEED-EB Actions

The IEQ category presents significant opportunities to impact occupant health and wellbeing. UCOP pursued cost-effective credits to garner the greatest improvement to occupant health within the project budget.

## IEQc10.3

A new green cleaning program has been welcomed into the Franklin Building with great success. The low-toxicity products now being used are a healthier choice for the environment, occupants, and maintenance staff. UCOP found that this program generated the greatest excitement among occupants of any operational change made under LEED-EB. In one notable staff meeting, an announcement of the switch to green cleaning received cheers and applause.

The majority of products in the Franklin Building's green cleaning program are Green Seal-37 certified. In instances where Green Seal certified products are not available, UCOP selected products that comply with the California Code of Regulations maximum allowable VOC levels. In addition to specifying sustainable cleaning products, the new green cleaning program requires that there are no antimicrobial agents in the building's hand soap and all floor stripping products must be zinc free.

A significant component of this credit was selecting and testing new products. UCOP held several custodial training sessions to demonstrate proper chemical usage and receive feedback on new products. This feedback was used to determine the acceptability of each sustainable alternative. If the feedback for a brand or a particular product was negative, testing continued. The dialogue ultimately produced only a few items without satisfactory green equivalents.

UCOP recommends beginning product testing early in the project timeline

if is anticipated for any LEED-EB credit, whether it is cleaning chemicals or recycled content paper. Allotting adequate time for testing is necessary to ensure that each green product will perform as expected and be accepted by those using it. Furthermore, it is necessary to verify and document that new products satisfy sustainability requirements before the performance period begins to guarantee that LEED-EB points will be awarded.

To read more about Green Seal certification and find products that meet the program's environmental performance standards, visit [www.greenseal.org](http://www.greenseal.org).

## Cost & Savings

UCOP hired an engineering consultant to confirm that the Franklin Building was in compliance with IEQ Prerequisite 1. The consultant inspected the outside air ventilation and exhaust systems to verify that the equipment was operating properly and maintaining a minimum airflow rate. This service cost \$3,620. High efficiency MERV 13 filters were installed in the building's HVAC system under IEQc5.1 to reduce the quantity of particulates that enter in the air system. These filters are replaced once each year at a total annual cost of \$250.







# Costs, Benefits and Acknowledgements

## Costs & Benefits

Certifying the Franklin Building at a LEED-EB Silver level required 1500 staff and consultant hours and \$37,200 in capital investments. Operational changes that maintain the building with greater sensitivity to environmental and human health concerns cost \$1,330 annually. This cost is far outweighed by savings of \$30,700 achieved each year through various operational improvements.

Building commissioning constituted the bulk of LEED-EB hard costs in the Franklin Building project. However, increasing the building's efficiency through a monitoring-based commissioning program (MBCx) will also generate the majority of operational cost-savings. Campuses are encouraged to take advantage of incentive money offered by the UC/CSU/IOU Energy Efficiency Partnership Program to help fund commissioning activities. The Partnership was indispensable to the Franklin Building project, furnishing roughly two-thirds of the total MBCx cost. Information about the Partnership can be found at [www.uccsuioee.org](http://www.uccsuioee.org).

In addition to Partnership funding, UCOP received hardware donations and free installation services from the East Bay Municipal Utility District, and a grant from StopWaste.Org. Campuses should consider searching for local sources of grant funding to help finance sustainability measures.

## Acknowledgements

UCOP thanks the following individuals who offered their time and expertise to the Franklin Building project: Michael Keleman, Associate Director of Building Services; Maric Munn, Associate Director of Energy and Utilities; George Getgen, Director of Facilities Administration; Jon Giacomini, Manager of Administration and Space Planning; Matt St.Clair, Sustainability Manager; Jubilee Daniels, LEED-EB Project Manager; Linda Furtado, Facilities Liaison; Matthew Leet, Chief Engineer; Lesley Clark, Strategic Sourcing; Michael Gidding, Engineer; Griselda Balanza, Space Planning; Mark Lozano, Building Services; Mark Ottinger, Building Manager; Larry Wong, Environmental Health and Safety;

and UCOP Departmental Sustainability Coordinators. UCOP also thanks the following organizations for providing funding and technical assistance: UC/CSU/IOU Energy Efficiency Partnership; East Bay Municipal Utility District; StopWaste.Org; Green Building in Alameda County; and CEC Public Interest Energy Research.

## Contact Information

Questions regarding the University of California Policy on Sustainable Practices, the Franklin Building LEED-EB project, or implementing the LEED-EB program in buildings on your campus can be directed to Matt St.Clair, UCOP's Sustainability Manager, at [Matthew.StClair@ucop.edu](mailto:Matthew.StClair@ucop.edu) or (510)287-3897.

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### IMAGE CREDITS

- Page 1: Reeds/Trista Little
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- Page 4: WE page theme/Gianni T.
- Page 5: EA page theme/Lynne Lancaster
- Page 6: MR page theme/Valdas Zajanckauskas
- Page 8: IEQ page theme/Corné van Braak

Case study written and produced by Trista Little with support from Jubilee Daniels and Matthew St.Clair.



# LEED-EB Project Scorecard

## Franklin Building, UCOP

		Possible	Attempted	Earned
<b>Sustainable Sites</b>		<b>14 Points</b>	<b>5</b>	<b>5</b>

Prereq 1	<b>Erosion &amp; Sedimentation Control</b>	Required	Y	E
Prereq 2	<b>Age of Building</b>	Required	Y	E
Credit 1	<b>Plan for Green Site and Building Exterior Management</b>	2	1	1
Credit 2	<b>High Development Density Building and Area</b>	1	1	1
Credit 3.1	<b>Alternative Transportation: Public Transportation Access</b>	1	1	1
Credit 3.2	<b>Alternative Transportation: Bicycle Storage &amp; Changing Rooms</b>	1	1	1
Credit 3.3	<b>Alternative Transportation: Alternative Fuel Vehicles</b>	1		
Credit 3.4	<b>Alternative Transportation: Car Pooling &amp; Telecommuting</b>	1		
Credit 4.1	<b>Reduced Site Disturbance: Protect or Restore Open Space</b>	1		
Credit 4.2	<b>Reduced Site Disturbance: Development Footprint</b>	1		
Credit 5.1	<b>Stormwater Management: 25% Rate and Quantity Reduction</b>	1		
Credit 5.2	<b>Stormwater Management: 50% Rate and Quantity Reduction</b>	1		
Credit 6.1	<b>Heat Island Reduction: Non-Roof Surfaces</b>	1	1	1
Credit 6.2	<b>Heat Island Reduction: Roof Surfaces</b>	1		
Credit 7	<b>Light Pollution Reduction</b>	1		

<b>Water Efficiency</b>		5 Points	2	2
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Prereq 1	<b>Minimum Water Efficiency</b>	Required	Y	E
Prereq 2	<b>Discharge Water Compliance</b>	Required	Y	E
Credit 1.1	<b>Water Efficient Landscaping: 50% Reduction</b>	1		
Credit 1.2	<b>Water Efficient Landscaping: 95% Reduction</b>	1		
Credit 2	<b>Innovative Wastewater Technologies</b>	1		
Credit 3.1	<b>Water Use Reduction: 10% Reduction</b>	1	1	1
Credit 3.2	<b>Water Use Reduction: 20% Reduction</b>	1	1	1

<b>Energy &amp; Atmosphere</b>		23 Points	10	10
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Prereq 1	<b>Existing Building Commissioning</b>	Required	Y	E
Prereq 2	<b>Minimum Energy Performance, Energy Star Score of 60</b>	Required	Y	E
Prereq 3	<b>Ozone Protection</b>	Required	Y	E
Credit 1	<b>Optimize Energy Performance, Energy Star Score 63-99</b>	1 to 10	7	7
Credit 2	<b>Onsite and Offsite Renewable Energy, 5-30% On-site or 25-100% Off-site</b>	1 to 4	3	3
Credit 3.1	<b>Building Operation &amp; Maintenance: Staff Education</b>	1		
Credit 3.2	<b>Building Operation &amp; Maintenance: Building Systems Maintenance</b>	1		
Credit 3.3	<b>Building Operation &amp; Maintenance: Building Systems Monitoring</b>	1		
Credit 4	<b>Additional Ozone Protection</b>	1		
Credit 5.1-3	<b>Performance Measurement: Enhanced Metering</b>	1 to 3		
Credit 5.4	<b>Performance Measurement: Emission Reduction Reporting</b>	1		
Credit 6	<b>Documenting Sustainable Building Cost Impacts</b>	1		

<b>Materials &amp; Resources</b>		16 Points	15	15
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Prereq 1.1	<b>Source Reduction and Waste Management: Waste Stream Audit</b>	Required	Y	E
Prereq 1.2	<b>Source Reduction and Waste Management: Storage &amp; Collection of Recyclables</b>	Required	Y	E
Prereq 2.0	<b>Toxic Material Source Reduction: Reduced Mercury in Light Bulbs</b>	Required	Y	E
Credit 1	<b>Construction Waste Management</b>	2	2	2
Credit 2	<b>Optimize Use of Alternative Materials</b>	5	5	5
Credit 3	<b>Optimize Use of IAQ Compliant Products</b>	2	2	2
Credit 4	<b>Sustainable Cleaning Products and Materials</b>	3	2	2
Credit 5	<b>Occupant Recycling</b>	3	3	3
Credit 6	<b>Additional Toxic Material Source Reduction: Reduced Mercury in Light Bulbs</b>	1	1	1



# LEED-EB Project Scorecard

## Franklin Building, UCOP

		Possible	Attempted	Earned
<b>Indoor Environmental Quality</b>		<b>22 Points</b>	<b>4</b>	<b>4</b>
Prereq 1	<b>Outside Air and Exhaust</b>	Required	Y	E
Prereq 2	<b>Environmental Tobacco Smoke (ETS) Control</b>	Required	Y	E
Prereq 3	<b>Asbestos Removal or Encapsulation</b>	Required	Y	E
Prereq 4	<b>PCB Removal</b>	Required	Y	E
Credit 1	<b>Outdoor Air Delivery Monitoring</b>	1		
Credit 2	<b>Increase Ventilation</b>	1		
Credit 3	<b>Construction IAQ Management Plan</b>	1		
Credit 4.1	<b>Documenting Productivity Impacts: Absenteeism and Healthcare Cost Impacts</b>	1		
Credit 4.2	<b>Documenting Productivity Impacts: Other Impacts</b>	1		
Credit 5.1	<b>Indoor Chemical and Pollutant Source Control, Non-Cleaning – Air Filters</b>	1	1	1
Credit 5.2	<b>Indoor Chemical and Pollutant Source Control, Non-Cleaning – High Volume Copying</b>	1		
Credit 6.1	<b>Controllability of Systems: Lighting</b>	1		
Credit 6.2	<b>Controllability of Systems: Temperature and Ventilation</b>	1		
Credit 7.1	<b>Thermal Comfort: Compliance</b>	1		
Credit 7.2	<b>Thermal Comfort: Permanent Monitoring System</b>	1		
Credit 8.1	<b>Daylighting &amp; Views: 2% Daylight for 50% of Occupied Spaces</b>	1		
Credit 8.2	<b>Daylighting &amp; Views: 2% Daylight for 75% of Occupied Spaces</b>	1		
Credit 8.3	<b>Daylighting &amp; Views: Views for 45% of Occupied Spaces</b>	1		
Credit 8.4	<b>Daylighting &amp; Views: Views for 90% of Occupied Spaces</b>	1		
Credit 9	<b>Contemporary IAQ Practice</b>	1		
Credit 10.1	<b>Green Cleaning: Entryway Systems</b>	1	1	1
Credit 10.2	<b>Green Cleaning: Isolation of Janitorial Closets</b>	1	1	1
Credit 10.3	<b>Green Cleaning: Low Environmental Impact Cleaning Policy</b>	1	1	1
Credit 10.4-5	<b>Green Cleaning: Low Environmental Impact Pest Management Policy</b>	2		
Credit 10.6	<b>Green Cleaning: Low Environmental Impact Cleaning Equipment Policy</b>	1		
<b>Innovation in Upgrades, Operations and Maintenance</b>		<b>5 Points</b>	<b>5</b>	<b>4</b>
Credit 1.1	<b>Innovation: Optimize Use of Alternative Materials</b>	1	1	1
Credit 1.2	<b>Innovation: Occupant Recycling</b>	1	1	1
Credit 1.3	<b>Innovation: Education Program</b>	1	1	1
Credit 1.4	<b>Innovation: Leading Higher Education Toward Sustainable O&amp;M</b>	1	1	
Credit 2	<b>LEED Accredited Professional</b>	1	1	1
<b>Project Totals</b>		<b>85 Points</b>	<b>41</b>	<b>40</b>
<b>Certified</b> 32-39 points <b>Silver</b> 40-47 points <b>Gold</b> 48-63 points <b>Platinum</b> 64-85 points				