Project Narrative

The headquarters for The David and Lucile Packard Foundation in Los Altos, California brings staff, grantees and partners together to solve the world’s most intractable problems. For two decades, as the Foundation’s grant-making programs expanded locally and internationally, staff and operations have been scattered in various buildings—this project brings them together in one primary location to enhance collaboration on their many projects. Their prior facilities were primarily large private offices that included meeting space within each office which limited collaboration. The new design has half the staff in open workstations, and half in small private offices, supported by a diverse range of shared communal meeting and social spaces.

Sustainable Design

The project’s focus on sustainability reflects the Foundation’s core work of conserving and restoring the Earth’s natural systems. Their new home – the largest building to date to receive Net Zero Energy Building Certification™ through the International Living Future Institute – is the cornerstone of their effort to demonstrate how they can improve the effectiveness and the quality of life for its employees while meeting aggressive carbon reduction goals as an organization.

The project vision was not to design a sustainable building, but to advance the Foundation’s sustainability as an organization. We believe in a fundamentally shift to broaden the approach to sustainability beyond the building to include the organization as a whole, and to assist our clients in achieving these larger goals. Our integrated design team, including transportation planners, sustainable food experts and a newly formed client Sustainable Task Force, began with an assessment of the Foundation’s overall GHG inventory. Staff commuting, travel and building energy use each represented about a third of their emissions. We then developed strategies to address each of these sectors, to reduce their entire carbon footprint by 80% by 2050. Getting their building to zero energy was the key first step in this journey, reducing overall emissions by 35%.

The emissions associated with Commuting were addressed through a comprehensive transportation demand management program. With this plan in hand, we were able to negotiate a reduction in on-site parking from the 160 spaces per the planning code, to just 67 spaces. This allowed us to eliminate an $8 million underground parking garage, cut the building’s embodied energy in half, and create a superior courtyard with mature trees and landscaping since they were no longer planted over structure. Extensive video conferencing capabilities were included to support the Foundations commitment to reduce air travel by 10% in the next two years.

Occupant Survey Results

In response to prior lessons learned as our buildings are occupied and we conduct post occupancy surveys, we are now explicitly including an additional phase of work (and fee) for 1 year after occupancy. This allows the full design team to respond to issues that come up in the energy monitoring and occupant survey results. There were a number of results we discovered in the CBE survey that we were then able to address.

Some of the occupants reported glare problems in certain offices and a number of these were attributed to the automatic exterior blinds not being calibrated correctly, these were then reprogrammed to the correct times. There was also a thin shaft of daylight that “leaked” between the window frame and the blind which we were able to remedy with the addition of a continuous angle. Some occupants expressed a lack of adequate daylight in their space, our sense is that these first floor workers would be fine in a typical office, but compared to the exceptionally bright and even daylighting on the second floor, they don’t feel they have “daylight parity.” The most significant failure with the building when it opened was the complete mechanical failure of two of the four Multi-stack heat pumps that provided heating. This left the building with inadequate heating in the winter of 2013 prior to the survey. It would be interesting to survey again on the issue and see if complaints of cold hands were reduced.

Several acoustic issues were raised in the survey, in particular the staff entrance was much more heavily used than anticipated, disturbing adjacent workstations. We have since separated that entry from the workstations with a glazed partition to mitigate this issue. There were also complaints about speech privacy and noise in the workstations, reflecting a challenging transition from private to open offices for some staff.
The team completed a detailed plug load study to quantify their existing plug loads, and developed recommendations for purchasing and power management that predicted a 58% reduction in these loads. Detailed measured data shows plug loads came in significantly below this reduced target. This was due in part to quickly falling power demand for computing due to solid state drives and the shift to low power chips developed for phones and tablets.

The building design was fundamentally shaped by the desire for a thin floor plate for excellent daylighting and natural ventilation. A great deal of attention was paid to shading, including fixed and operable controlled exterior blinds. The building envelope included exterior insulation, wood studs and extensive detailing to minimize thermal breaks, and air sealing to reduce infiltration. An unexpected discovery was that triple element glazing reduced the initial cost of construction by allowing the elimination of 4 pipe perimeter heating/cooling elements. The building includes a 258 kw PV system that also serves several car charging stations as part of our effort to reduce transportation emissions. The PV cost dropped significantly from first design cost estimates to final installed price as the cost of panels fell sharply.

Total EUI: 22kBtu/sf/yr
Net EUI: -4kBtu/sf/yr
Percent Reduction from National Median EUI for Building Type: 76%
Lighting Power Density: 0.60watts/sf
The David & Lucile Packard Foundation Headquarters

Los Altos, California
The David & Lucile Packard Foundation Headquarters
LOS ALTOS, CALIFORNIA
LEED Certification Review Report

This report contains the results of the technical review of an application for LEED® certification submitted for the specified project. LEED certification is an official recognition that a project complies with the requirements prescribed within the LEED rating systems as created and maintained by the U.S. Green Building Council® (USGBC®). The LEED certification program is administered by the Green Building Certification Institute (GBCI®).

Packard Foundation 343 Second St Project

Project ID: 1000004074
Rating system & version: LEED-NC v2009
Project registration date: 01/08/2010

SUSTAINABLE SITES

| SS1 | Construction Activity Pollution Prevention | Y |
| SS2 | Development Density and Community Connectivity | 5 / 5 |
| SS3 | Brownfield Redevelopment | 0 / 1 |
| SS4-1 | Alternative Transportation - Public Transportation Access | 4 / 6 |
| SS4-2 | Alternative Transportation - Bicycle Storage and Changing Rooms | 1 / 1 |
| SS4-3 | Alternative Transportation - Low-Emitting and Fuel-Efficient Vehicles | 3 / 3 |
| SS5 | Site Selection | 1 / 1 |
| SS6 | Stormwater Design - Quantity Control | 1 / 1 |
| SS7 | Heat Island Effect, Non-Roof | 0 / 1 |
| SS8 | Light Pollution Reduction | 1 / 1 |

TOTAL: 24 OF 26

WATER EFFICIENCY

| WE1 | Water Use Reduction - 20% Reduction | Y |
| WE2 | Water Efficient Landscaping | 2 / 4 |
| WE3 | Water Use Reduction | 2 / 2 |

TOTAL: 8 OF 10

ENERGY AND ATMOSPHERE

| EA1 | Fundamental Commissioning of the Building Energy Systems | Y |
| EA2 | Minimum Energy Performance | Y |
| EA3 | Fundamental Refrigerant Mgmt | Y |
| EA4 | Optimize Energy Performance | 19 / 19 |
| EA5 | On-Site Renewable Energy | 7 / 7 |
| EA6 | Enhanced Commissioning | 2 / 2 |
| EA7 | Enhanced Refrigerant Mgmt | 1 / 1 |
| EA8 | Measurement and Verification | 3 / 3 |
| EA9 | Green Power | 8 / 2 |

TOTAL: 33 OF 35

MATERIALS AND RESOURCES

| MR1 | Storage and Collection of Recyclables | Y |
| MR2 | Construction Waste Mgmt | 2 / 2 |
| MR3 | Materials Reuse | 0 / 2 |
| MR4 | Recycled Content | 0 / 2 |

TOTAL: 6 OF 14

INNOVATION IN DESIGN

| ID1 | Innovation in Design | 1 / 1 |
| ID2 | LEED® Accredited Professional | 0 / 1 |

TOTAL: 2 OF 6

REGIONAL PRIORITY CREDITS

| SC1 | Alternative Transportation - Public Transportation Access | 1 / 1 |
| SC7 | Heat Island Effect, Non-Roof | 0 / 1 |
| SC8 | Innovative Wastewater Technologies | 1 / 1 |
| SC9 | Water Use Reduction | 1 / 1 |
| SC10 | On-Site Renewable Energy | 1 / 1 |
| SC11 | Daylight and Views | 1 / 1 |

TOTAL: 4 OF 4

TOTAL: 94 OF 110
The David & Lucile Packard Foundation Headquarters
LOS ALTOS, CALIFORNIA

285 kW PV array results in net positive energy balance
58 million parking garage eliminated through TDMP
Captured rainwater for toilet flushing and irrigation
40' width maximizes daylighting and natural ventilation
Dynamic exterior blinds lower with direct sun
Plug loads reduced by over 60%
Triple-glazed, R-8 windows reduce heating system
Exposed FSC certified wood structure
Chilled beams with 100% fresh air
“Green Streets” strategies increase site porosity by 62%
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Project Team

Architect of Record: EHDD Architecture
Owner’s Representative: Rhodes Dahl
General Contractor: DPR Construction
Structural: Tipping Mar
Mechanical, Electrical & Plumbing: Integral Group
Civil: Sherwood Design Engineers
Acoustics: Charles M. Salter Associates
Commissioning Agent: CTG Energetics – The CADMUS Group
Landscape: Joni L. Janecki & Associates
Lighting: Janet Nolan & Associates
Daylighting: Loisos Ubbelohde

Photo Credit

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