

The William and Flora Hewlett Foundation Headquarters Building

Introduction

In 2002, the William and Flora Hewlett Foundation Headquarters Building, located in unincorporated San Mateo County, California, was awarded a U.S. Green Building Council Leadership in Energy and Environmental Design (LEED) v2.0 “gold” certification rating. LEED is a framework for measuring a building’s performance and sustainability. Based on well-founded scientific standards, the LEED rating system assesses a building in five categories: sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. The William and Flora Hewlett Foundation Headquarters is the first building in California to be certified at the “gold” level, and has been assessed as one of the greenest buildings in the state. This paper discusses some of the building’s key LEED features, and analyzes the costs and benefits of constructing a sustainable building.

Foundation Background



The William and Flora Hewlett Foundation is a non-profit foundation that has been making grants since 1966 to address current social and environmental issues, both nationally and internationally. In addition, William Hewlett, who started the Foundation with his wife and son, co-founded the technology company Hewlett-Packard. The Foundation’s goal was to create a building that reflects their values by supporting the emerging green building industry and by providing a healthy

and productive workplace. The U.S. Green Building Council’s LEED rating system was used in setting the goals for the project before the design began. The Foundation earned the gold level recognition by addressing a wide range of building related environmental issues concerning site design, water and energy efficiency, materials and resources, and indoor environmental quality. The Headquarters building is a two-story, 48,000 square foot office building with 110 staff members. The building is located on 6.8 acres, where 60% of the site was retained as open space. The planning process for the Foundation’s Headquarters building began in 1998. The actual building design process started in January 2000 and was completed in May 2002 (William and Flora Hewlett Foundation 2005).

The Foundation’s Key LEED Building Features

The William and Flora Hewlett Foundation Building demonstrates what can be done by following principles of green design and construction. The following are key LEED features which the Foundation implemented during the building design process.

Water Efficiency Techniques



Site drainage and stormwater control systems employ bio-swales, detention ponds, and filtration devices to limit disruption of natural water flows, increase on-site infiltration, and eliminate contaminants. These measures help protect the ecology of the site, the surrounding neighborhood, and San Francisco Bay. Drought-tolerant landscaping featuring native vegetation combine to reduce water consumption by a projected fifty percent compared to similar, conventionally landscaped sites. Waterless

urinals in the men's restrooms and small, efficient dishwashers in the staff cafes, along with other water-saving strategies, reduce water use in the building by a projected fifteen percent compared to similar facilities (William and Flora Hewlett Foundation 2005).

Energy Efficiency Techniques



Since buildings consume nearly a third of the energy used in the United States, optimizing energy performance in buildings can reduce energy demand and provide a number of environmental benefits. The Foundation's Headquarters building was designed to save energy and increase the comfort of occupants through individually controlled systems such as operable windows, localized manual flood diffusers, and natural light control throughout the workspace. Perhaps the most notable energy-saving strategy is the building's use of ice tanks. Six tanks create ice during off-peak hours at night, and during the summer days, warm air is cooled by the ice, thus minimizing the need

for energy during peak demand hours. With other energy-saving techniques such as solar paneling, the building exceeds the California Title 24 energy-performance standards by thirty-five percent (William and Flora Hewlett Foundation 2005).

Materials and Resources



One main reason the Foundation's Headquarters building has less environmental impact than other conventional buildings lies in the materials that it is made of. Eighty-three percent of all the wood-based products were certified by the Forest Stewardship Council, and came from responsibility managed forests. Thirty-three percent of materials (by cost) were manufactured within 500 miles of the site, thus reducing the environmental impacts resulting from transportation. Sixty-four percent of the building materials have recycled content (William and Flora Hewlett Foundation 2005). For example, the wall insulation is made of recycled, post-industrial denim and post industrial, recycled rubber tires were used in the fitness center flooring. In addition, countertops in meeting rooms and workrooms are made of soy and wheat composites, although they resemble granite. Over

fifty percent of the paved surfaces used Road Oyl: parking-lot material made of rock, sand, pine

pitch and resin, was used for the walkways and parking lots. Road Oyl is harder than asphalt, 20 degrees cooler on the hottest days, and does not leach hydrocarbons into the atmosphere like petroleum-based asphalt does (Dong 2002).

Costs and Benefits of Green Building

One of the perceived downsides of green building is high upfront cost; however, green building practices often reduce operation and maintenance costs. When the entire life-cycle of a building and its components are considered, green building techniques can provide an affordable alternative to more traditional building practices.

According to the William and Flora Hewlett Foundation's project manager, it is about fifteen to twenty percent more expensive in upfront costs to construct a gold-certified sustainable building than a conventional one; however, those costs need to be balanced against the savings in water and energy that occur over time (Dong 2002). For example of potential energy savings, a 2002 study by the David & Lucile Packard Foundation, in collaboration with various architecture and engineering firms, showed that the energy consumed by a "market" building is three times that of a gold-certified building, and nearly twice that of a building certified at the lowest LEED level (Dong 2002).

In an office setting such as the William and Flora Hewlett Foundation Building, one should look at the overall productivity level, and the benefits of obtaining happier, healthier people by creating a comfortable office environment. The physical workplace is proven to be linked to job satisfaction, often in productivity from increased worker effectiveness. Studies over the years have pointed to energy savings and healthier, more productive occupants, which can reap financial benefits (Chan 2004).

Some states are offering tax incentives for "going green". California offers tax incentives for solar projects, and utilities offer rebates and green building financing. Savings by Design, a state program funded by Pacific Gas and Electric Co., San Diego Gas and Electric Co., Southern California Edison Co. and the Southern California Gas Co., pays up to \$150,000 to the landlord and \$50,000 to the design team (Chan 2004).

As noble as an owner's intentions might be, green building initiatives are unfortunately one of the first things to be nixed in the haste to trim budgets. It is critical that green building considerations are accounted for in the earliest stages of planning. Unfortunately, the idea of environmentally sound construction is brought to the table too late in the process to be financially feasible for the owner. The initial budgets do not account for the increased costs associated with some green initiatives, or the long-term benefits are taken out of consideration (Pennie 2005).

In addition, market forces may distract builders from the incentives of going green. In the past decade, the building boom had developers too busy to think about environmental or health impact. Furthermore, oftentimes the developers will not be the occupants and do not receive the green benefits. The payback for energy and resource conserving systems is not realized near-term. Potential lessees are primarily concerned about lighting, sub-divisibility, power, wiring for

computers, ease of access, security, etc. Green issues have not historically been a priority when looking for suitable space. Private investors have focused on the near term without considering that many green systems require years to achieve payback on the initial investment (Chan 2004).

Conclusion

Green buildings are designed and operated to conserve energy and resources. They are also designed to minimize the exposure of the building occupants to anything unhealthy from the building or building operations. The principles used to create green buildings are proven and are poised to change building construction (Aldrich 2002). The sustainable building practices listed above offer an opportunity to create environmentally sound and resource efficient buildings by using an integrated approach to design. It is my hope that these green building techniques will serve as the prototypes for buildings we will commonly see, live and work in, in the future.

References

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