

Adobe Systems Corporate Headquarters

San Jose, California

Building Type:	Office high-rise; Computer Data Center
Recognition Status:	Energy Star label, LEED for Existing Buildings v2.0 Platinum
Gross Sq. Footage:	West Tower: 391,000 sq. ft. (119,200 sq. m.); 18 stories East Tower: 325,000 sq. ft. (1,030 sq. m.); 16 stories Almaden Tower: 273,000 sq. ft. (25,400 sq. m.); 17 stories
Total Retrofit Project Cost:	US\$1.4 million (total invested to date)
Cost Savings:	US\$1.2 million/yr
DOE Climate Zone:	Zone 4 (2,400 HDD, 500 CDD)



Exterior façade of Adobe Tower
© Rocky Mountain Institute

PROJECT OVERVIEW

The Adobe Towers, located in San Jose, California, serve as the global headquarters for Adobe Systems Incorporated. The site comprises three towers, West, East, and Almaden, which were completed in 1996, 1998, and 2003, respectively. Managed by Cushman & Wakefield, all three towers received the Energy Star label and Platinum Leadership in Energy and Environmental Design (LEED) for Existing Buildings rating in 2006.

THE BOTTOM LINE

Energy efficiency upgrades began in 2001 with the help of Cushman & Wakefield, a global commercial real estate brokerage and services company. During the next five years, Adobe spent US\$1.4 million on 64 separate, energy-efficiency improvement projects in the Towers. After rebates totaling US\$389,000, the net cost of all these projects was only US\$1.11 million. Better yet, Adobe now saves US\$1.2 million per year in reduced energy operating expenses, which translates into a whopping 121 percent return on investment and an average payback per project of 9.5 months.

Adobe's efforts to reduce its use of energy and resources have produced impressive results. The company has been able to reduce its electricity use by 35 percent per occupant and reduce its natural gas use by 41 percent per occupant. Domestic water use is down 22 percent and the amount of water used for landscape irrigation has been significantly reduced — by 76 percent. Through composting and recycling programs, Adobe diverts up to 94 percent of its solid waste. In addition, 20 percent of Adobe employees use public transit systems, compared to only 4 percent of the county population as a whole. And finally, to offset the energy consumed by the Towers, Adobe purchases 30 percent of its electricity from renewable energy sources.

Adobe Towers / © William Porter



“You can’t manage what you can’t measure. So we have very good monitoring and control of all the building systems.”

— *George Denise, General Manager
Cushman & Wakefield.*

Adobe Systems Corporate Headquarters

San Jose, California



Interior tower lobby / © Rocky Mountain Institute

The key to achieving these reductions in resources and costs has been constant measurement and verification. While the three buildings were built to be energy efficient, early on, the Adobe Towers management team discovered that a building designed to be energy efficient does not always operate that way. To achieve an overall reduction in environmental impact, Adobe and its partners systematically implemented a series of specific incremental measures to create pleasant and efficient work environments.

ENERGY CRISIS INSTIGATES CHANGE

In 2002, California Governor Gray Davis challenged large electricity users to reduce their consumption and Adobe responded by focusing heavily on energy use reduction. After surpassing the Governor's 10 percent reduction target, the company further sought to achieve a 20 percent reduction in electricity

use. First, Cushman & Wakefield asked all property managers to benchmark their buildings using the Environmental Protection Agency's (EPA) Energy Star program. Under this program, buildings are compared for energy efficiency and those scoring above the 75th percentile earn the Energy Star label. After benchmarking the existing towers' performance, the facility management team discovered that one of the two towers (the third tower was still under construction) already qualified for the Energy Star label and the other building was only one point short. Achieving the Energy Star label for both buildings immediately became another goal.

LABELS AND CERTIFICATIONS LEAD TO IDENTIFICATION OF GREATER SAVINGS

From the outset, Cushman & Wakefield and Adobe evaluated various strategies for operational improvement. Each project's financial costs and operational effectiveness were examined closely. While improving the performance of existing buildings to meet Energy Star guidelines was the original goal, the building analyses revealed numerous opportunities for improvement. Specifically, building inventories revealed potential lighting and energy load reductions, as well as possible enhancements to equipment quality, water management, waste generation, and measurement and verification systems. Changes in building operations began with the "low-hanging fruit," the improvements that required little or no cost but would yield immediate and substantial savings. After these modifications were completed, Adobe and Cushman & Wakefield hired consultants to identify areas where investments would lead to even greater resource and cost savings. Eventually this rigorous identification and evaluation process prompted Adobe to seek LEED for Existing Buildings ratings for all three towers. And once again, the LEED process helped identify more opportunities for building and operational enhancements.

"I was one of the naysayers saying 'No, green costs money, it doesn't save money.' [But] boy I'll tell you, once I started seeing the cost savings, I'll jump right up on that bandwagon with anybody else because it works."

— *Randall Knox III, Director, Global Facilities Services, Adobe Systems*

Adobe Systems Corporate Headquarters

San Jose, California

SAVING WATER LEADS TO COST SAVINGS, TOO

At Adobe, water conservation was always an important consideration. For example, most of the landscaping was designed to be low-maintenance. The company chose plants adapted to the local climate zone and installed a drip-irrigation system at the onset. As the project team continued evaluating the building's performance, and especially once they decided to pursue LEED ratings, developing additional water-saving strategies became even more important.

First, a web-based weather station and automated drip-irrigation system for the landscaping of the East and West Towers were installed. This project cost US\$3,610 and resulted in US\$9,001 in annual savings—a payback period of 0.4 years, and a 249 percent return on investment. The next set of projects occurred in April 2005 when Adobe installed state-of-the-art digital water treatment monitoring and control stations with incoming and bleed-line water meters to calculate evaporation for reduced sewer charges. This project cost US\$39,422 with a rebate of US\$11,000 and annualized savings



Adobe Towers at night / © William Porter

of US\$12,000—this time resulting in a payback period of 2.4 years and a 42 percent return on investment. That same month, automated faucets, toilet flush valves, and waterless urinals were installed in all three headquarters buildings. The automated toilets and flush valves cost US\$110,358 to install and now save the company US\$24,949 annually (a payback period of 4.4 years and a 23 percent return on investment). Waterless urinal installation cost US\$35,374 with a rebate of US\$5,306. Annual

savings from this measure are US\$5,336, meaning it has a payback period of four years. Finally, a system of web-based controls was installed to reduce pump run-time for the property's fountain. Rather than operating for a full 112 hours per week, the pump run-time was reduced by more than half, down to 50 hours. The system cost US\$4,400 with a US\$925 rebate. Annual savings amount to US\$5,440, which resulted in an immediate payback and a 157 percent return on investment. Combined, these changes allowed Adobe to reduce its water use by 36 percent.



Sky bridges between towers
© William Porter

Adobe Systems Corporate Headquarters

San Jose, California

INCENTIVE-BASED PROGRAM IMPROVES BUILDING PERFORMANCE

In an effort to provide incentives to enhance building performance and facilities management practices, Adobe worked with Cushman and Wakefield to create a set of eleven key performance indicators (KPIs). The KPIs focus on customer satisfaction, preventative maintenance, cost controls, and energy conservation. To encourage Cushman and Wakefield to use these performance indicators and achieve the agreed upon objectives, Adobe initiated a performance-based contract with the management firm. Twenty percent of Cushman and Wakefield's fees are now based on how well the company delivers on resource efficiency initiatives and practices. To facilitate the contract, Adobe established a scoring system based on a scale of 0 to 11; each point achieved through this system is tied to a monetary bonus for Cushman and Wakefield. In recent years, Cushman and Wakefield has received more than 90 percent of the bonuses available under this incentive program. The use of key performance indicators tied to financial incentives once again illustrates the highly creative and economically effective ways in which Adobe and Cushman and Wakefield have approached building performance objectives at the Adobe Towers.



Mechanical room / © William Porter

DON'T GO IT ALONE

While Adobe and Cushman & Wakefield completed 16 of 64 building improvement projects in-house, they also benefited from the expertise of more than 20 consultants and contractors. Johnson Controls redesigned and modified the cooling tower staging and sequencing to reduce energy use within the towers by 50 percent. This modification only cost US\$575 and saves Adobe over US\$12,000 each year.

Integrated Building Solutions designed and installed several projects in the towers. Installation of motion sensors in all Adobe conference rooms was perhaps their most economically lucrative project. In the East and West Towers, installation of these motion sensors cost US\$37,500, but Adobe received an US\$8,714 rebate and has realized US\$40,357 in annualized savings, a return on investment of 140 percent. In the Almaden Tower, motion sensors on office floors and in conference rooms cost US\$19,899 to install; Adobe received a US\$7,905 rebate on this project and has realized annualized savings of US\$13,000 — a 108 percent return on investment.

Nu-Tek Lighting is the firm responsible for the majority of the lighting upgrade projects within Adobe Towers. Nu-Tek, in collaboration with Grainger Industrial Supply, installed high-efficiency lighting fixtures throughout the three towers and their corresponding parking garages. Collectively, the 19 lighting projects completed at Adobe cost US\$300,701; Adobe received cost rebates of US\$44,918 and has realized annualized savings of

US\$155,616, a return on investment of 61 percent. This project demonstrates that the use of multiple contractors to complete arrays of projects does not have to be complicated or prohibitively expensive. On the contrary, Adobe has been able to employ a variety of firms to maximize resource efficiency and profits.

WEB-BASED TRACKING COORDINATES PREVENTATIVE MAINTENANCE

Adobe and Cushman & Wakefield also implemented sophisticated monitoring and control operations to create a truly integrated operational system for the Adobe towers. Cushman & Wakefield utilized a customized computerized maintenance management system to track all preventative and corrective maintenance jobs. This web-based program logs all building equipment, maintenance schedules, and work orders. Preventive maintenance work orders are sent to the respective building engineer one week in advance of the required completion date. The system also receives and records work requests from staff for all other corrective or routine work tasks. Work orders are generated and routed to the appropriate engineer automatically. A building engineer can view the upcoming 30 days of preventive maintenance requirements at any time. While Adobe Towers' building engineers conduct an average of 200 preventive maintenance work orders per month, they now boast a 100 percent on-time completion rate. These combined, preventative maintenance efforts are critical to ensuring the smooth and efficient operation of the towers.

Adobe Systems Corporate Headquarters

San Jose, California



Installation of drip irrigation system / © William Porter

LOOK UPSTREAM TO REDUCE WASTE

Adobe and Cushman & Wakefield examined all their supplies to determine their environmental and financial impacts. An early success came from reviewing office supplies. Initial analysis revealed that few, if any, contained recycled content. As a result, Adobe partnered with their office supplies vendor to implement a “Buy Recycled” program.

Ultimately, Cushman & Wakefield worked with Adobe to create contractor and supplier guidelines to encourage the use of alternative materials. To reduce the environmental impacts of the materials purchased for use in the operations and maintenance of these buildings, Cushman & Wakefield gives priority to products that include salvaged or recycled content, that are responsibly harvested, and that are regionally harvested and processed.

In addition to creating and implementing sustainable purchasing standards, Adobe also has an outstanding recycling program. The company has diverted over 80 percent of its waste away from landfills through an internal program as well as employing a waste hauler who exceeds California recycling standards. Employees are encouraged to recycle paper, corrugated cardboard, glass, metal, and batteries at designated areas on every floor. Maintenance staff has been trained in the appropriate procedures for sorting materials on the loading dock. These containers are hauled to a state-of-the-art materials recovery facility called the Recyclery, where the contents are hand-separated again to divert as much waste as possible from the landfill.

PROJECT TEAM

Owner:

Adobe Systems, Incorporated

Facility Manager:

Cushman & Wakefield

Mechanical Engineer:

Adobe Systems, Inc.

LEED Consultant:

Sebesta Blomberg

Lighting Design:

Nu-Tek Lighting Solutions Inc.
and T. Marshall Associates

Building Automation Consultant:

Integrated Building Solutions

Maintenance Services:

ACME Building Maintenance

Waste Management Consultant:

Allied Waste Industries, Inc.

Landscape Architect:

Jensen Corporation

SOURCES

George Denise, General Manager,
Cushman & Wakefield

Randall Knox III, Director, Global
Facilities Services, Adobe Systems

Energy Star website:

www.energystar.gov