A three-building complex with approximately 989,000 square feet serves as corporate headquarters for software company Adobe Systems Incorporated. With space used as offices, data centers, software labs, mechanical rooms, cafeterias and a fitness center, the facility has a broad range of energy usage needs. The property is managed by Cushman & Wakefield, an international corporate real estate management firm charged with optimizing the building’s energy use while ensuring occupant comfort. To that end, Adobe has partnered with Cushman & Wakefield to undertake a series of retrocommissioning projects to improve building performance.

When George Denise came to Adobe in 2001 as Cushman & Wakefield’s General Manager of Facilities, the complex consisted of two towers, built in 1996 and 1998, respectively. The facilities team was well-trained – including a fifth-generation building engineer with an industrial science degree – and they regularly attended industry conferences and advanced training programs on the various systems used in the building. However, the buildings had never been fully commissioned, so after five years of occupancy, the towers were prime candidates for retrocommissioning.

The building management system showed many manual overrides, which lead Denise to believe that “there were definitely opportunities to get the building operating the way it was supposed to be operating.”

To address the obvious as well as unseen issues in the facility, the first step was to have an audit performed by the energy management software manufacturer. The audit allowed Adobe to identify problems in the building and to investigate ways to increase system efficiency. With help from the PG&E incentive programs, Adobe was able to implement a number of O&M and retrofit measures to fix problems identified in the audit. In all, more than 60 measures were implemented over a five-year period.

Adobe Systems Incorporated

A systematic process for improving an existing building’s performance by identifying and implementing relatively low-cost operational and maintenance improvements.

>> Retrocommissioning Project Spotlight

**Facility:** Adobe headquarters, three towers totaling 989,000 square feet of office space  
**Project Timeline:** 2001-2006  
**Costs:** $1.1 million after incentives  
**Simple Payback:** 9 months

**Benefits:**
- Energy cost savings: $1.2 million per year  
- Percent energy savings: 35% (electricity), 41% (natural gas)  
- All three buildings earned EPA ENERGY STAR® labels with scores of 98, 100, and 100 (on a scale of 1 to 100; does not include data centers)  
- Adobe has achieved LEED®-EB Platinum Certification on all three buildings; the company is the first organization in the world to have three Platinum-certified building.

>> Company Milestones

2001: Adobe begins EPA ENERGY STAR benchmarking and completes four energy efficiency projects.  
2002: California Governor Gray Davis asks the state to reduce electricity consumption 10% below 1999 levels. Adobe already had accomplished this, and decides to aim for 20%.  
2006: All three buildings achieve LEED-EB Platinum certification.
Adobe Systems Incorporated

The work easily paid for itself: Adobe invested $1.4 million, received $389,000 in rebates through PG&E, and generated savings of $1.2 million per year. Such success understandably strengthened the credibility of Denise and his team with upper management at Adobe. After the first dozen measures were implemented, the results paved the way for approval of further projects. “We took one project at a time, looking at the costs, seeing what the rebate would be, estimating savings, implementing, testing. After a while it became routine,” says Denise.

Adobe regularly used retrocommissioning to improve the buildings’ ENERGY STAR® scores (see box below). When the third tower was built in 2003, it was not fully commissioned and had a score of 50 as a new building. While this score might be expected to be lower due to the constant operation of a chiller to cool the data centers and software labs, the company nonetheless wanted to improve the building's performance. After retrocommissioning, the building’s score increased to 83.

ENERGY STAR®: Cushman & Wakefield has used the EPA’s Portfolio Manager and ENERGY STAR energy performance rating system since the late 1990s to benchmark building performance. By 2000, the company required benchmarking on all of its US buildings, and was training managers in the benchmarking process. The company found that as a building’s ENERGY STAR score increased, energy-related operating costs fell and the building systems operated more efficiently, creating more consistent environmental conditions for occupants.

LEED®: The US Green Building Council’s (USGBC) Leadership in Energy and Environmental Design (LEED) rating systems recognize achievements in sustainable green building, development, and operations. An existing building seeking LEED certification (LEED-EB) can receive points based on its ENERGY STAR rating. Retrocommissioning measures are also part of the overall certification requirements for LEED-EB. More information about the LEED Rating Systems can be found on the USGBC website, www.usgbc.org.

Adobe then set its sights on LEED® certification for the buildings, a process requiring additional operational and equipment improvements, including monitoring and controls projects. Retrocommissioning measures were also included as part of the services provided by the LEED consultant, who offered additional guidance and training for the building engineers. Adobe was awarded the highest certification level on all three towers in 2006, making it the first organization in the world to have three Platinum-certified buildings.

After achieving LEED status, the company shifted its focus to ensuring that the benefits of its building optimization program would endure over time, or “persist.” To that end, Adobe is working to develop a system to monitor and operate the building’s different systems and subsystems through one central control. The new system will use digital meters to allow remote monitoring of data centers and cooling towers, and will send alarms when performance goes outside of set parameters. Such a system is an important means of insuring that retrocommissioning brings lasting changes, rather than one-time fixes that slowly disappear.

Denise compares building optimization to tuning up a car. “Without a tune-up, the performance gets worse and worse until eventually the car is inoperable. Before our retrocommissioning program, the Adobe West Tower was approaching that,” with hundreds of tenant comfort complaints each month. Now, the three buildings combined generate 20 to 40 calls per month, depending on the season.

The success at Adobe was realized by utilizing both in-house expertise and available utility programs providing technical and financial assistance. And while the projects required a significant investment of time from everyone involved, Denise believes it was well worth it: “Between the EPA ENERGY STAR Portfolio Manager tool and the utility incentive programs in California, I can’t imagine why anyone who’s aware of these programs wouldn’t take advantage of them.”

FOR MORE INFORMATION
California Commissioning Collaborative (CCC)
www.cacx.org
The CCC is a non-profit organization made up of government, utility and building services organizations and professionals committed to improving the performance of buildings and their systems. Visit the website for helpful resources including:

- Commissioning Guides
- Case Studies
- Tools and Templates
- Industry News