FOCUS ON THE ENVIRONMENT

Going Green Pays Off for Two Leading Businesses

BY MARK GOLAN

INCORPORATING BUILDING DESIGN ELEMENTS that are environmentally sensitive. Embarking on facility retrofits to conserve resources. These are no longer daring, radical concepts employed only by *avant-garde* thinkers with deep pockets. Today, going green isn't just a feel-good proposition that can get a company positive headlines and community applause.

Whether they are starting a building project from scratch or finding ways to retrofit existing facilities, companies that have committed to saving energy and resources are now enjoying national recognition—and significant financial rewards. Two examples:

- Bank of America—The financial giant is building a cutting-edge, $1 billion skyscraper in downtown New York that will generate 70 percent of its own electricity, cut water consumption in half, and rely on local and recycled materials for construction.
- Adobe Systems Inc.—The renowned developer of graphic design software has completed dozens of retrofit projects at its Silicon Valley headquarters that have had the aggregate effect of decreasing energy use by 35 percent, natural gas use by 41 percent, domestic water use by 22 percent and landscape irrigation by 76 percent.

Adobe has already earned the U.S. Green Building Council's LEED Platinum designation, the top rating that signifies meeting tough criteria for sustainable site development, water savings, energy efficiency, materials selection and indoor environmental quality. Bank of America is well on its way to becoming the first in the nation to receive this widely recognized certification for a high-rise building.

Both companies are also gaining from attractive fiscal benefits. Bank of America is receiving a Green Building tax credit from New York State worth $7.2 million over five years—enough to cover the cost of the building's environmental innovations. But there's more. In addition to anticipated operational cost savings over the life of the building, Bank of America has received a $1 million

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The Adobe Café in the West Tower of the headquarters building uses large windows to take advantage of natural light. The facility has earned the U.S. Green Building Council's LEED Platinum designation, the organization's top rating.

grant from the New York State Energy Research and Development Authority, an expedited permitting process from the New York City Department of Buildings—priceless, say many involved with construction projects—and a promised 25 percent discount from the New York City Department of Environmental Protection on future water bills.

Adobe found that going green pays off, too. The company, which has completed 72 projects at its three-towered headquarters building, spent $1.4 million, received rebates totaling $389,000, and is saving $1.2 million per year. Those who have led the Adobe retrofit effort calculate an average simple payback of 9.5 months and a return on investment of 121 percent.

A CLOSER LOOK AT BANK OF AMERICA'S SKYSCRAPER

When One Bryant Park—the name of Bank of America's 55-story high-rise in the heart of Manhattan—is finished in 2008, it will be among New York City's tallest, second in height only to the Empire State Building. It will house 1.1 million square feet of office space for Bank of America's New York operations, 1 million square feet for other commercial tenants and 50,000 square feet for the restored, historical Henry Miller Theater.

More important, it will set a new standard for high-rise construction, addressing a range of environmental concerns with cutting-edge innovations and already established environmental best practices. In many cases, strategies in one area cross over into other areas to provide benefits.

One example is the building's approach to water use. For most buildings, storm water is simply shed and dumped into the city's inadequate storm system, often causing sewage to overflow into the Hudson River. At One Bryant Park, captured storm water will combine with water from sinks, steam condensation and condensate from the air conditioning system. Treated slightly, this recycled water will be a resource for the building's cooling tower and for flushing toilets. In addition, waterless urinals will save about 3 million gallons of water annually. Together, these measures should cut water consumption by almost half.

Another water-related strategy affects heating and cooling energy costs. A pumping system will bring water from the bedrock on which the building stands into internal tanks. At a natural temperature of 58 degrees, this water will help cool the building's air in the summer and heat it in the winter.

Energy is another big savings area. The building's cogeneration power plant will provide more than two-thirds of the energy that occupants require and will operate at a higher efficiency level than utility-run electricity generation, which typically wastes 7 percent just transmitting the power over great distances. One Bryant Park's natural-gas-fired, 5.1 megawatt plant will recapture the heat energy that usually escapes from power plants, operating at 77 percent efficiency compared with the 27 percent achievement of most power plants. At night, when demand for electricity decreases substantially, the system will make ice in cellar tanks. During the day, building managers can melt the ice to supplement the air conditioning system—another way to reduce electricity demand.

Other innovations include:

- Relying on recycled content whenever possible. One example is using blast furnace slag, a waste product of steel manufacturing, in place of 45 percent of the cement needed for constructing the building. Normally, making a ton of cement releases a ton of carbon dioxide. Concrete made with slag not only sets up faster and is stronger, but also eliminates the

release of about 56,000 tons of carbon dioxide at One Bryant Park.

- Providing an advanced air system that filters out 95 percent of particulate matter, ozone and all volatile organic compounds such as those found in carpet, paint and other materials. In comparison, the standard office building requirement is 35 percent filtration. An under-floor air displacement system also will provide personal ventilation rather than mixing and spreading dust, germs and pollutants through the building.
- Reducing future waste by placing wires and air conditioning in the floors so new tenants won't need to tear out ducts and ceilings when they reconfigure space to suit their needs.

Add to all this floor-to-ceiling insulating panels of glass, automatic daylight-sensing light dimmers and LED lighting. When finished, One Bryant Park should provide an inviting environment for workers as well as a standard-setting approach to new construction.

ADOBE'S TALE OF TOWERS

Adobe provides a different—but just as compelling—template for environmental sensitivity. Adobe's story begins with the summer 2001 California energy crisis. The state's governor called on large electricity users to reduce energy use by 10 percent. It was a tough challenge for a company like Adobe, whose three headquarter towers in San Jose, Calif., showed strong consideration for energy efficiency and won rebates for design even before the electricity crisis. Nonetheless, Adobe decided to see if it could do better.

The company partnered with a corporate real estate management firm to adopt a strategy of identifying multiple projects and proving the worth of each. In some instances, this strategy called for getting back to the basics of good conservation; in others, it meant employing best practices from other buildings and projects. For each initiative, the management firm completed an analysis that showed the costs, expected rebates, projected annual savings, projected return on investment and payback. By taking on one project at a time, the energy-saving team could demonstrate the value of each initiative and build credibility with each success story.

The cost to complete 72 projects at Adobe's three-towered headquarters was $1.4 million. The company received rebates totaling $389,000, and is saving $1.2 million per year. That translates to a payback of less than 10 months and a return on investment of 121 percent.

The first project was simple. Adobe launched a campaign to turn off lights, remove bulbs or reduce wattage by switching to more efficient bulbs and technology whenever possible. This provided a reduction of 337,020 kilowatt hours and a savings of about $100,000. Other projects ranged from simple steps to complex installations. Some examples:

- Modified tower cooling staging and sequencing to obtain roughly a 50 percent decrease in energy consumption. Cost: $575. Annual savings: $12,272.
- Installed Web-based, weather-station-automated irrigation controllers with a drip irrigation system

Adobe installed fluorescent bulbs in garages, and improved lighting efficiency in conference rooms and perimeter offices for annual savings of more than $110,000.

for east tower landscaping. Cost: $3,610. Annual savings: $9,001.

- Installed waterless urinals in all buildings. Cost: $35,374. Rebate: $5,396. Annual savings: $6,338.
- Converted east and west tower garage lighting to fluorescent bulbs. This project was expensive, but had the highest annual savings. Cost: $156,878. Annual savings: $86,198. PG&E rebate: $40,558. Payback period: one year, four months.
- Rewired conference rooms and perimeter offices for enhanced lighting zone control and reprogrammed relay controls for demand-response programs in east and west towers. Cost: $83,000. Rebate: $2,887. Annual savings: $28,000.

REAPING THE REWARDS OF GOOD CHOICES

Companies face increasing pressure to make environmentally sound choices, especially in a time of increasing consideration of global warming. Though most of the concern about greenhouse gases focuses on transportation and industry, the Pew Center on Global Climate Change issued a report in 2005 that estimates about 43 percent of carbon dioxide emissions result from energy services required by residential, commercial and industrial buildings. The Pew report found that using technology available today, between 30 and 40 percent of greenhouse gas emissions arising from such buildings can be reduced.

Of course, embracing an ecologically sound approach to facilities is about more than just reducing carbon dioxide, saving water or recycling materials. The examples that Bank of America and Adobe provide show that companies can respond to the environmental challenges that we all face and still pay attention to the bottom line.

The U.S. Green Building Council has pointed out that going green doesn't happen with a single decision or an individual change. It is the result of transforming the way buildings are constructed and operated so that environmentally and socially responsible policies become the default starting point for every company—with the end result being a safe, healthy and appealing work environment for occupants. ■