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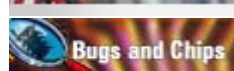
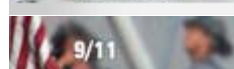
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## SEARCH

Wednesday, 02/26/2003

## Going Green: Sustainable Development

## San Diego pursues energy independence through building design

Source: Environmental Services Department, City of San Diego  
Feb. 26, 2003

During the energy crisis of 2000 to 2001, fear of energy shortages and rolling blackouts loomed over San Diegans like an albatross, forcing many businesses to retool methods of energy management. While the city of San Diego reacted -- establishing an emergency energy conservation program that resulted in avoiding \$3.2 million in energy expenses -- it had already been exploring energy-efficient building design since the mid-1990s.

Around the country, Portland, Ore.; San Jose, Calif.; Austin, Texas; and the state of Pennsylvania were trailblazing the way toward designing energy-efficient buildings by adopting the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) certification. Buildings that are LEED certified are rated on best sustainable practices in five major categories. Ultimately, a building can achieve four possible levels of LEED certification from certified to silver, gold and the highest being platinum.

While the city of San Diego had not yet adopted LEED, it was creating "green" buildings by following energy-efficient standards established by California's Title 24 regulation.

In 1996, through the vision of former Mayor Susan Golding and the city's Environmental Services Department Director Richard L. Hays, the city opened the doors of its first energy-efficient "green" building -- the Ridgehaven "Green" Building Demonstration Project. Through a cost-effective retrofit using energy-efficient and water-conservation technology, Ridgehaven was reconstructed into a building that annually consumes only 8 to 9 kilowatt-hours per square foot, compared to the 21 kilowatt-hours used prior, and saves approximately \$200,000 in energy expenses.

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The Ridgehaven "Green Building," the city of San Diego's first and most energy efficient and environmentally sensitive buildings, is nationally recognized as one of America's greenest buildings. In 1999, Ridgehaven received the nation's Energy Star Label for Buildings, awarded by the U.S. Department of Energy and the U.S. Environmental Protection Agency. The EPA in 2002 honored Ridgehaven as one of the top energy performing buildings in the nation.

The U.S. Green Building Council last year chose Ridgehaven to test a pilot green building rating system for existing buildings. Green building features include energy savings, resource conservation, a healthy workplace and operational savings.

This placed Ridgehaven on the map and in 1999 it became the nation's first building to receive the U.S. Department of Energy's and U.S. Environmental Protection Agency's Energy Star Label. In addition, Ridgehaven has earned more than 16 awards for architectural excellence and energy conservation. Currently, Ridgehaven is the headquarters for the city's Environmental Services Department and is one of the lowest commercial energy users in San Diego County.

During the midst of the energy shortage in 2001, Mayor Dick Murphy took office and established his 10 goals in his State of the City Address. To achieve goal nine "pursuit of energy independence," the mayor and City Manager Michael Uberuaga requested the development of the Energy Conservation and Management Division at the Environmental Services Department. Daily this division helps evaluate city energy use and recommends alternative technology to further reduce energy consumption.

In pursuit of energy independence, the new Energy Division recommended that city council adopt the LEED "Silver Level" standard for development of new buildings and major remodels larger than 5,000 square feet.

By adopting the LEED rating system, the city has made a commitment to sustainability in addition to providing energy efficient buildings. Everything from lighting, waterless urinals, high efficiency windows, natural day lighting and day lighting controls, variable speed fans, renewable energy such as photovoltaic (PV) and landfill gas, natural gas power co-generation systems, xeriscape (low water use plants), natural ventilation, environmentally friendly cleaning materials and permeable parking lot surfaces are considered factors in the overall health of the building and its impact on the environment and its occupants. In addition, it is anticipated that designing buildings to the LEED "Silver Level" certification will reduce facility operating costs by approximately 17 percent to 25 percent.

The first city buildings impacted by this design standard are the new downtown Main Library and most of its new branches, along with six fire stations. These buildings

will use about 35 percent recycled products, such as recycled steel rebar for concrete, carpeting and toilet partitions made from recycled plastics and a minimum of 50 percent of the construction debris will be diverted from the landfill by reusing doors and ceiling panels with the remainder being sent to local recyclers. Building water use will be reduced by landscaping building surroundings with xeriscape gardens and installing waterless urinals.

The most significant step towards energy independence was a retrofit to a building that met all the LEED "Silver Level" standard criteria before it was ever adopted. In 2000, the city's Environmental Services Department remodeled its Miramar Operations Station administration building and increased its energy efficiencies by 38 percent, saved annually more than 86,000 kilowatt-hours and \$14,000 in operating costs.

The Miramar Operations Station along with the Ridgehaven Court and the Carmel Mountain Library are participating in the LEED EB (Existing Building) pilot program. This program will certify existing facilities using sustainable criteria similar to the LEED certification for new construction. The city of San Diego is one of 50 participants nationwide currently enrolled in the LEED EB pilot program.



The 73-kilowatt hour photovoltaic (PV) array powering the Miramar Operations Station's administration building also provides shade to vehicles parked in the lot. The building is the first city facility to receive solar panels. The PV system generates 100 percent of the building's annual energy needs and saves an estimated 81,000 kilowatts annually. The array reduces energy costs by more than \$28,400 based on projected energy rates, and reduces greenhouse gases such as nitrogen oxides by 200 pounds annually.

In 2002 the city further enhanced the Miramar Operations Station with the addition of two solar carports, positioned over the building's parking lot, covered with 468 electrical solar or PV panels that generate an estimated 140 watts each. Combined the PV panels produce approximately 91,950 kilowatt-hours per year to power the entire administration building throughout the year.

Annually, the energy generated from this PV array produces roughly the same amount of energy utilized by the building and saves the city \$16,551 in energy expenses. This building became the city's first all solar operated "energy independent" building.

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