

# A Sustainable Approach to Building Design



The VA regional office in Reno, Nev., is the first VA building to receive the LEED Silver certification for environmental design and energy efficiency.

SAEED NOORBAKSH

## The award-winning design of the Reno, Nev., VA Regional Office is a model for future energy efficient, environmentally friendly projects.

**K**ermit the Frog knows “it’s not easy being green,” but VA is making progress in “greening” its facilities—old and new. The Reno, Nev., VA Regional Office is the first VA facility to earn Silver certification from the Leadership in Energy and Environmental Design (LEED) program.

The 36,000 square-foot concrete building, which opened its doors to veterans on March 15, 2007, will save the facility an estimated 38 percent in annual operating costs.

Because of the arduous two-year application process, the two-story structure just received its certification in April. Although VA has been building Energy Star facilities since 2000, it now hopes to bring all new buildings to LEED status. In the Energy Star program, energy-efficient products are identified and promoted, with the goal of reducing greenhouse gas emissions. Although similar to the Energy Star certification, the LEED certification is more rigorous and strict, making it harder to achieve.

“LEED is rapidly becoming the

national norm in the design and construction industry for environmental and sustainable design,” said Leo Phelan, director of VBA’s Office of Facilities, Access and Administration. “With its commitment to energy, sustainability and local materials, LEED really is the wave of the future.”

Rating systems, which differ depending on the type and scope of the project, factor in such aspects as cost, feasibility, and owner’s commitment and requirements. Building types eligible for LEED certification include new construction, existing buildings, commercial interiors, core and shell, homes, and neighborhood development.

The Reno VARO facility, graded under the “new construction” rating system, met all seven prerequisites to be Silver-certified. To prevent false or exaggerated “green” building claims, the system calls for third-party verification of the design, construction and operation of the building.

Initial planning for a new VA facility begins three years before ground

is broken. Information is gathered about the potential site, along with data on the functions the new structure will perform and who it will serve. VA architects determine floor plan, finishes, layout, lighting, acoustics and other details to estimate funding costs.

Using the design-build process, VA architects complete 35 percent of the blue print, ensuring the Department’s requirements are met. Once approved by the Department, the VA architects work with local and national design firms to complete the project in compliance with industry norms and standards.

The Reno VARO’s state-of-the-art building has many features that make it a comprehensive energy saver. Tilt-up concrete walls, which are 7 inches thick, help insulate the building to keep heat inside during the winter and outside during the summer. Steel trusses and a pan roof system, along with the massive walls, help contribute to the heat loss and heat gain. The high-efficiency indirect lighting, which uses occupancy

sensors to ensure lights are turned off when not in use, reduces electricity consumption. Photo sensors known as “day-lighting” controls balance natural light from the outside with electrical lighting in the building, maintaining desired lighting levels in the space. Overall, the facility is expected to reduce energy use by 65 percent annually.

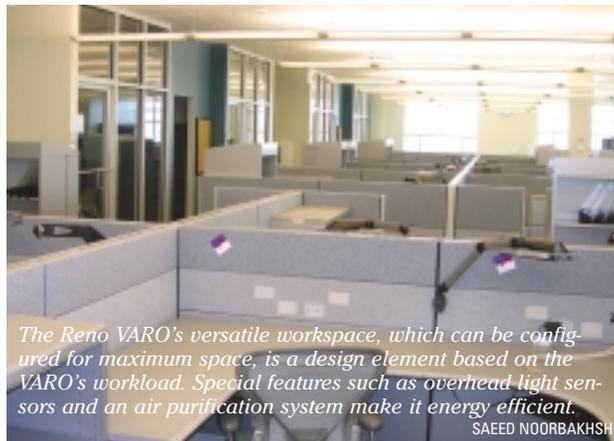
Light-colored roofing, commonly referred to as a “cool roof,” was installed to reflect the sun’s heat. Comprised of a white membrane layer, the roofing allows the surface to reflect the heat of the sun back to the sky instead of transferring it to the building below. In addition, the roofing system contains rigid R-30 insulation, twice that required by building codes. Standards on window types, size, and glass performance, all aimed at maximizing light penetration and minimizing glare, as well as high-efficiency glazing and exterior sun shades, help reduce heat gain and loss.

Internal design of the facility, with the VARO’s mission in mind, maximizes space while encouraging flexibility. The office layout uses fewer walls, rolling carts and staging areas for easy access to files. Easily changed and modified, the office adopted mobile files, eliminating the need for conventional vertical file cabinets, thus using less space while promoting teamwork and communications. Recycling of paper, glass, plastic, aluminum and cardboard is encouraged by placement of bins throughout the building.

A Building Automation System (BAS) keeps office air as clean as possible. The BAS controls the air conditioner’s outside dampers, helping regulate the amount of fresh air introduced into the building. Carbon dioxide sensors, placed throughout the

building, are monitored by the BAS; based on the readings, the dampers are adjusted for air quality.

Areas that involve chemical mixing, such as the copy rooms and janitor closets, are separately exhausted so no contaminated air can escape. Walk-off mats, installed at all regular entryways, prevent dirt and particulates from entering the building. In addition, all paint, coatings, adhesives, sealants and carpet systems in-



*The Reno VARO’s versatile workspace, which can be configured for maximum space, is a design element based on the VARO’s workload. Special features such as overhead light sensors and an air purification system make it energy efficient.*  
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*The employee break room’s walls depict various military medals; it was designed to remind employees of VA’s mission.*  
KATHLEEN TAYLOR

stalled in the facility are low-Volatile Organic Compounds (VOC) products, meaning they contain lower levels of carbon than other chemicals.

The commitment to the environment is evident in the structure’s design. Xeriscaping—landscaping that does not require supplemental irrigation or pesticides—means low-maintenance grounds. The use of local indigenous plants, such as sumac and red yucca, fits the climate. Native

plants reduce irrigation often required by conventional landscaping by 79 percent. Internally, the building is also doing its part to reduce water usage. Plumbing fixtures, such as low-flow lavatories, showers, sinks and water-free urinals, helped create a 43 percent reduction in overall usage.

Sustainability doesn’t end with the construction of the building. The VARO provides reserved parking for hybrid, carpool and vanpool vehicles, and promotes use of public transportation. A bus stop is located less than a mile from the facility, and two more stops are planned nearby. The VARO also offers on-site storage facilities and encourages bicycling.

More than 10 percent of the materials used in the facility’s construction came from recycled materials. Local companies manufactured 30 percent of the materials and approximately 70 percent were harvested or extracted within 50 miles of the site. This effort not only supports the local economy, but also cuts down on costs associated with transporting materials to the site.

Next in the works for LEED certification are the Fort Harrison, Mont., VA Regional Office and the Boise, Idaho, VA Regional Office. Already built, the Fort Harrison facility is preparing all required documents to apply for LEED certification and is expected to achieve certification by the end of the year. The Boise steel-constructed facility, which is seeking LEED Silver status like the Reno VARO, is currently under design. The proposed site, which sits atop a volcanic caldera, will be the only VA facility to highlight the use of geothermal energy. **VA**

By Amanda Hester