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DPR CONSTRUCTION INC.'S SACRAMENTO, CALIF., OFFICE  
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A GENERAL  
CONTRACTING  
COMPANY  
LEARNS  
LESSONS  
ABOUT GREEN  
BUILDING

# A DEEPER SHADE OF GREEN



ASPECT COMMUNICATIONS, SAN JOSE, CALIF.  
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## THE PARADIGM HAS SHIFTED.

BY TED VAN DER LINDEN

What once was considered more of a grassroots effort has grown considerably greener during the last five years as more businesses understand and experience the benefits of sustainable design and construction. In fact, the U.S. Green Building Council (USGBC) reported in February that more than 23,000 building-industry professionals have earned LEED accreditation and 2,945 projects have registered with the intent of seeking some level of LEED certification.

As an active member of USGBC since 1999 and with the largest percentage of LEED-accredited professionals (LEED APs) on staff of any general contractor in the nation, Redwood City, Calif.-based DPR Construction Inc. ([www.dprinc.com](http://www.dprinc.com)) has been at the forefront of the green-building movement. The firm has worked on more than 30 green projects, and each one provided unique lessons about green building for general contractors and building owners.



DPR CONSTRUCTION'S SACRAMENTO OFFICE  
PHOTO BY ED ASMUS PHOTOGRAPHY

**THE ASPECT COMMUNICATIONS PROJECT** was DPR Construction's first true taste of sustainable design and construction and served as a springboard for establishing a more environmentally responsible organization. The first step in greening the company was education and training. ▼

### ASPECT COMMUNICATIONS

In 2001, DPR Construction completed the 110,000-square-foot (10219-m<sup>2</sup>) corporate headquarters for Aspect Communications, which was designed by Charlottesville, Va.-based William McDonough + Partners and considered the first green building in San Jose, Calif. The project was designed and built around the needs of the occupants with narrow floor plates to allow people to feel connected to the outdoors and be close to sources of natural light. Other notable design features included operable windows, raised-access flooring for underfloor air delivery to promote improved ventilation effectiveness, Forest Stewardship Council-certified wood, and low-VOC paints and sealants.

The Aspect Communications project was DPR Construction's first true taste of sustainable design and construction and served as a springboard for establishing a more environmentally responsible organization. The first step in greening the company was education and training. As a builder of advanced technology, biopharmaceutical and health-care facilities, the methodology for constructing high-performance buildings already was in place. And within the first year of launching a formalized

green-construction program, more than 300 professionals across DPR Construction's 10 regional offices were trained in overall sustainability and green building.

To ensure a consistent level of training among employees around the country, DPR Construction identified an internal team to develop a green road show that traveled to each office educating employees about the basic principles of green construction, the specific LEED rating systems and the charrette process for furthering green potential on projects. This initial effort led to many of DPR Construction's professional staff taking and passing the LEED AP exam. In fact, a good-natured competition among the offices began with e-mails being disseminated companywide touting which office had the most LEED APs. The greening of DPR Construction progressed to holding "Green Weeks" with a more in-depth level of training and awareness reaching all levels of the organization.

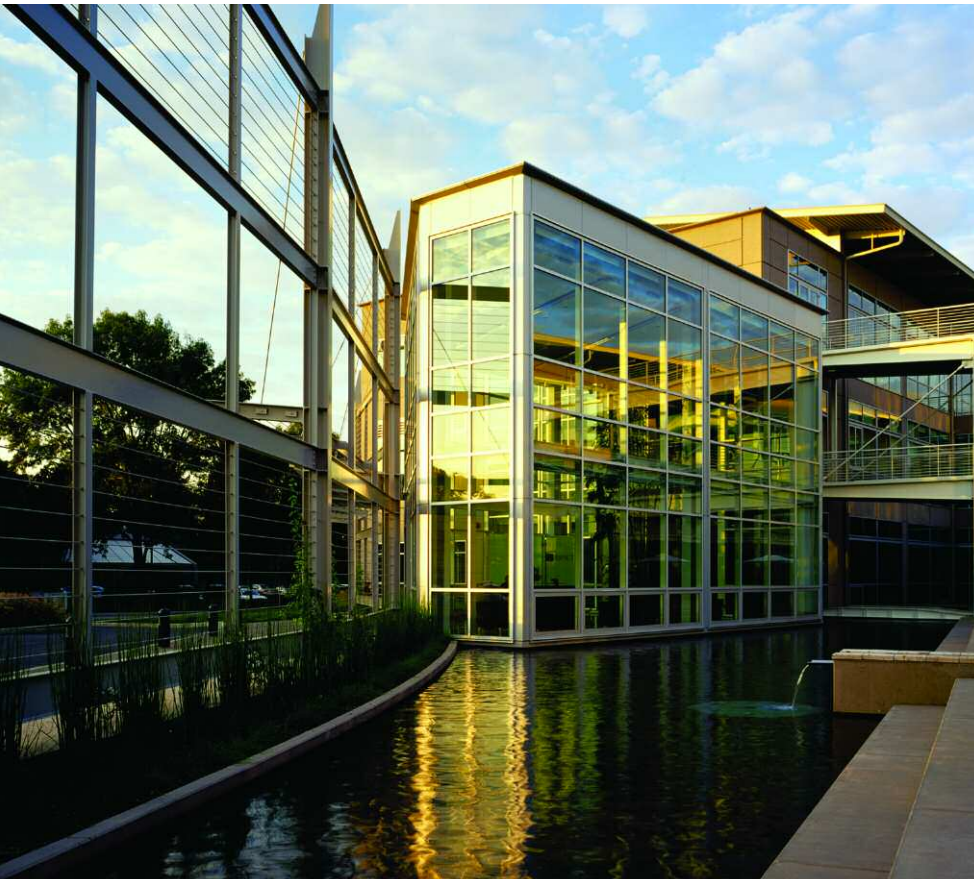
### DPR CONSTRUCTION'S SACRAMENTO OFFICE

Although formal education for DPR Construction's employees was complete, the real lessons began in mid-2002 when DPR Construction decided to walk in its customers' shoes and evaluate LEED certification for its new 52,300-square-foot (4859-m<sup>2</sup>) office building in Sacramento. The decision to pursue LEED was made after design had started (nearly 50 percent of construction documents were complete), which ultimately limited the number of green features DPR Construction elected to include.

During an initial green visioning and design charrette, during which the firm used a custom LEED preconstruction analysis tool, the team weighed each possible credit against the cost benefit of each credit to determine which credits had the highest rate of return. Those premiums ultimately were included in the overall project budget and the projected 10-year building return on investment.

Following the charrette, DPR Construction also conducted the following:

- Green preconstruction analysis to verify first costs versus cost benefits
- Environmental value analysis, including a matrix of weighted environmental attributes, such as recycled content versus locally manufactured and rapidly renewable materials versus materials harvested locally



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The result was a comprehensive LEED scorecard and cash-flow analysis that outlined the targeted credits and provided a working vision for a successful project. DPR Construction's Sacramento office—the first privately owned building to achieve LEED certification in the Sacramento Valley—attained Silver certification for new construction and Gold certification under LEED for Commercial Interiors (LEED-CI). In addition, the enhanced first costs, which totaled \$85,112 (including architect and engineer design costs) of the \$6.2 million facility, were recovered in just more than two years through energy, water and building operational savings.

Today, to get the most “green for green,” DPR Construction encourages owners to involve the design and construction team as early as possible and create a vision that clearly communicates the cause for greening a facility. For example, for some customers, employee attraction and retention are the primary motivating factors for building a green facility. For others, reductions in energy and water consumption are the main drivers, and some incorporate sustainable aspects into their facilities to meet the minimum local green requirements of certain jurisdictions. There also are many shades of green—ranging from “light green,” meaning using sustainable materials, or “dark green,” installing wastewater collection and treatment systems on-site in pursuit of Platinum-level LEED certification. A vision provides the team with a better understanding of the economic bottom-line goal, as well as broader goals of environmental and social strategies, ultimately helping shape the proper green strategy for the project.

While cost is another major consideration for owners incorporating sustainable design and construction on projects, many variables can come into play in determining what upfront premium will be paid for pursuing the different levels of green, especially those targeting LEED certification.

Various considerations may include:

- Whether the project is located in an urban setting where LEED credits easily are attained by proximity to mass-transit systems. For example, DPR Construction's Sacramento office building is located adjacent to several major bus routes, automatically earning a credit without additional first cost.

- The experience and familiarity of the architect and contractor in sustainable design and construction practices.
- How early project team members are engaged in the planning and preconstruction process.
- Knowledge and implementation of any incentives or available tax credits or programs offered.

Today, to get the most “green for green,” DPR Construction encourages owners to involve the design and construction team as early as possible and create a vision that clearly communicates the cause for greening a facility.



USGBC / PHOTOS BY SISSON STUDIOS

## USGBC HEADQUARTERS

One of the best examples of what can be accomplished when a team is engaged and a strategy is in place at the very first stages of design is the renovation of USGBC's headquarters. The goals of the project were to create a green headquarters space that would showcase LEED-CI, serve as a learning space and give USGBC's staff its first green workspace. All this had to be accomplished within a 30-day construction process from demolition to occupancy.

Early on it was determined the building's existing mechanical system would require extensive review to meet LEED-CI prerequisites, and the unusually low floor-to-floor heights of 8 1/3 feet (2.5 m) would complicate the installation of ductwork, lighting, and electrical and fire-suppression systems. As a result, the team focused primarily on Materials and Resources and Indoor Environmental Quality credits to meet certification goals. In the end, the USGBC project achieved Silver level LEED-CI certification and was completed on time with zero defects.

As an early adopter, DPR Construction has experienced the benefits of high-performance green building and will continue to help teams build the right green strategy for their projects, driving further market transformation and painting the nation a deeper shade of green. 🌱

*Ted van der Linden is the director of sustainable construction for Redwood City, Calif.-based DPR Construction Inc., a national general contractor and construction manager that specializes in technically challenging and sustainable projects. He can be reached at (415) 783-3700 or tedv@dprinc.com.*



USGBC / PHOTOS BY SISSON STUDIOS

**THE USGBC PROJECT** achieved Silver level LEED-CI certification and was completed on time with zero defects.

## MATERIALS AND SOURCES



### ▲ U.S. Green Building Council Headquarters, Washington, D.C.

- **FURNITURE** / HAWORTH/SMED, Calgary, Alberta, Canada, [www.smednet.com](http://www.smednet.com)
- **SYSTEMS (CUBES)** are PREMISE MOXIE.
- **SEATING** is TAG.
- **FILES** are X SERIES.
- **KITCHEN AND RECYCLING CENTER** are HAWORTH REFRESHMENT CENTERS.
- **PRIVATE OFFICES** are VANCOUVER.
- **CONFERENCE ROOM TABLES** are TACTICS, and **CHAIRS** are X99.
- **RECEPTION-AREA CHAIRS** are part of the HELLO seating collection.
- **CORK FLOORING** / EXPANKO INC., Parkersburg, Pa., [www.expanko.com](http://www.expanko.com)
- **CORK PATTERN TYPE** is THIN MOSAIC.
- **BORDER** is Traditional Dark.
- **PAINT** / THE SHERWIN-WILLIAMS CO., Cleveland, [www.sherwin-williams.com](http://www.sherwin-williams.com), Harmony Series
- **CARPET** / SHAW CONTRACT GROUP, Calhoun, Ga., [www.shawcontractgroup.com](http://www.shawcontractgroup.com)
- **WOOD DOORS** / MOHAWK FLUSH DOORS INC., Northumberland, Pa., [www.mohawkdoors.com](http://www.mohawkdoors.com)

### DPR CONSTRUCTION INC.'S SACRAMENTO OFFICE

- **ROOFING** / UltraPly thermoplastic polyolefin from FIRESTONE BUILDING PRODUCTS, Indianapolis, [www.firestonebpco.com](http://www.firestonebpco.com)
- **GREEN POWER** / Sacramento Municipal Utility District, 50 PERCENT GREENERGY PROGRAM, [www.smud.org/green/index.html](http://www.smud.org/green/index.html)
- **RECYCLED-CONTENT CARPETING** / Movement, Porifera, Seafarer and Synthesis from SHAW INDUSTRIES INC., Dalton, Ga., [www.shawfloors.com](http://www.shawfloors.com)
- **LOW-E ADHESIVE** / Shaw Adhesive from SHAW INDUSTRIES
- **RUBBER FLOORING** / ECOearth from ECOSURFACES, Lancaster, Pa., [www.ecosurfaces.com](http://www.ecosurfaces.com)
- **LOW-VOC PAINT** / ICI, Strongsville, Ohio, [www.icipaintsinna.com](http://www.icipaintsinna.com)
- **DUAL-FLUSH TOILETS** / CAROMA, Burnaby, British Columbia, Canada, [www.caromausa.com](http://www.caromausa.com)
- **WATERLESS URINALS** / WATERLESS CO., Vista, Calif., [www.waterless.com](http://www.waterless.com)