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Zachry takes the 'LEED' with new headquarters

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When workers in the Employment and Conference Center section at Zachry Construction Corp. wash their hands, the water doesn't run into the San Antonio Water System's sewer lines. Instead, through a complex plumbing system, the water is channeled to an underground holding tank and later used to irrigate the lawn and garden beds around the company's South Side headquarters.

Meanwhile, a separate system collects rainwater and holds it in two outside cisterns until it is piped in to flush toilets and then sent down another set of pipes that lead to the city's sewer system.

Such conservation measures are just a few that raised the price tag of the building and renovation of the last phase of Zachry's headquarters and landed the company a "Gold" LEED rating from the U.S. Green Building Council (USGBC). LEED stands for Leadership in Energy and Environmental Design. The building houses 45 workers who recruit and train Zachry employees and also houses a staging area for team projects.

From the very beginning, Zachry aimed high. Back in August 2004, the renovation involved the first San Antonio building to be registered for the LEED-NC, or new construction. The owners registered the building for a "Platinum" rating under the rules at the time, known as LEED 2.1 NC. In striving for the top rating, the construction company was about to delve full-force into the complex requirements surrounding green building, something that would also provide an education on the growing trend to all involved.

"There's no reason to ever set your goals low," says David Zachry, president of Zachry Construction Corp. "We didn't want to start out inching our way to a certain level. You don't get there by setting your goals at the bare minimum."

In April, the 20,000-square-foot building was granted a "Gold" rating, with 50 points, two shy of the 52 needed for "Platinum."

History

In the mid-1990s, building industry leaders joined forces and formed the USGBC in an effort to influence methods and products used in future development -- specifically to promote sustainable building. But it has been only in the last few years that the idea has taken hold. Indeed, in 2005 the U.S. market for green building products and services was $7 billion, according to the USGBC. This year the dollar figure is expected to reach $12 billion.

Locally, Zachry began toying with the idea of eco-conscious building during the early 2000s, when the company's leadership was transitioning to a new generation. David and John Zachry, named president and CEO respectively in 2004, favored a model that had more employees working under the same roof instead of scattered offices. (Bartell Zachry is still chairman of the board.) The company -- with almost 15,000 employees and some $1.9 billion in annual revenues -- wanted to offer workers and customers a more attractive environment than had existed since the company moved its offices to San Antonio in the 1940s.

So Zachry decided to build a new 120,000-square-foot structure attached to its existing buildings. The plan called for renovating the two existing office buildings, which totaled 220,000 square feet of space, after finishing the new structure. Today, the well-designed and furnished "New Office Building" houses the company's executive offices as well as a number of other departments.

Even at that time, Brian Clark, the firm's project manager, recalls that LEED certification for the New Office Building was discussed and quickly dismissed. Zachry was on a tight schedule, and a LEED project was perceived as taking too long. By the time Zachry had completed its new building and renovated its 200,000-square-foot existing office building, however, LEED was getting a lot of attention.

Meanwhile, Clark was spending some of his weekends attending green building expos and trade shows. Clark had graduated from Texas A&M University with a degree in environmental design in 1990 and had worked for Zachry since, starting out as construction engineer and working his way to project manager.

By the time the company was ready to start transforming what had been an electrical warehouse and computer data center, Clark was much more familiar with LEED. He also found his boss, David Zachry, supportive of taking on a project. The company brought in a LEED consultant from Georgia Tech University. With the consultant's help, the team identified 56 of 69 points eligible for the platinum rating. Some credits were not attainable because of the nature of the project; others were seen as just too costly.

Clark attended classes to obtain his LEED certification, as did Julie Inman, the project's No. 2, and a number of people who were hired for different aspects of the reconstruction.

Down to the details

While LEED was getting increasing national attention in 2004, it was still mostly talk in San Antonio. So when Benito Polendo, principal with the architectural firm Kell Muñoz, was approached about Zachry's building, he felt like he'd been given a unique opportunity. Not only was he asked to do the city's first LEED project, but the owners were shooting for the stars. "You don't get these kind of clients every day," he says.

For him, LEED was setting a standard in the industry. "What everybody is striving for is to establish the direction of building for the future," he says.

The LEED system for new construction awards points in six categories -- with the number of possible points granted totaling 69. For a project to be rated platinum, it must have at least 52 points. Below that the project qualifies for the gold rating; below 39, silver; and below 33, certified.

The list of items -- most worth one point each -- was detailed. And so was the work involved.

"We had to separate all of the waste into different dumpsters," explains Inman. Diverting 50 percent of the waste from landfills amounted to one point; diverting 75 percent added another. "We reached almost 90 percent," she says about the 200 tons of debris that was diverted from landfills.

Outside the building, the sidewalk is made of pervious material, allowing the water to seep through. The cost of the material alone is 30 percent to 40 percent higher than asphalt-based material, says Tom Carter, the Goetting and Associates engineer who led the site work for the building.

In the water efficiency category, the project attained the maximum five points with its roof and two-tank water catchment system and underground sink-water collection system for irrigation. Goetting and Associates' Brian Goebel, the engineer who led the water efficiency effort, says water collection is becoming more popular in new buildings, but the cost isn't cheap.

"I'm not sure there's a decent monetary pay back on it just yet, but it does save water," he says.

Solar panels are another feature that may not yet be cost effective. Sixty solar panels provide a shading area near a patio outside the building and also generate 8 percent of the building's electricity. Originally, the plans called for the panels to be placed on the roof, but Clark says photovoltaic panels require regular maintenance, and safety led the team to place them near the facility but away from the roof.

"It's still not very cost-effective," Clark says about the solar system.

Inside the front door of the 20,000-square-foot building, a sample of recycled materials used in the renovation is displayed on a wall -- a testament to the fact that, in the LEED category of materials and resources, Zachry was granted all 10 points for its submission.

And all the wood was salvaged from prior Zachry projects or demolition companies.

"We were randomly searching for salvage material," says Claudia Carlos, an interior designer with Kell Muñoz.

Carlos was able to find numerous products made of renewable materials, including agriboard cabinets made from sunflower hulls and wheat. A natural linoleum product made from linseed oil, wood flour and other natural materials is featured in various parts of the building as is terrazzo flooring made on-site from 100 percent recycled glass. Fabric wall coverings were made of 100 percent recycled polyester and other wall coverings from wood pulp. Cork flooring was made from tree-bark.

The original brickwork on the shell of the building was also retained.

One of the biggest challenges, says Kell Muñoz' Polendo, was bringing natural light into the building. To address this, the builders placed some 36 tubular skylights on the roof. Low-emission windows were also placed in the front of the building. Clerestory windows were added on the second floor to attract more light.

Under the floor

One of the building's most unique features is its underfloor mechanical air distribution system. The system allows for the company to easily reconfigure work space, but also aims to save energy. Air is shipped through ducts from the main system and then dispersed under the floor, then discharged through the vents. Because the air is coming from the floor, it heats or cools the bottom six feet -- the area most commonly used by people.

This area, however, was one where Zachry came up short for the points it needed to reach the platinum rating, and it was disappointing for Goetting's Goebel, who also led the effort in the mechanical arena.

"We expected more points for saving energy ... " he says. By connecting to Zachry's main plant, engineers improved efficiencies when compared to utilizing an old chiller the building had previously used. That move was figured into the LEED calculation, but disallowed by the USGBC. The council said, Goebel explains, that if the central plant was available anyway, the new system would have to be connected, so it could not consider the extra points for saving energy.

Other points expected but not received involved a misunderstanding by the team or inadequate documentation, says Carlos.

For example, the impervious concrete that surrounds the building was expected to earn one point. While the USGBC considered the material in granting one point for stormwater design, it denied Zachry the credit for reducing the heat island effect beyond the roof. "The only type of paving they consider is open grid pavement or nothing at all," Carlos says. Open grid is a concrete block with holes that are then filled with grass and dirt.

Yet another point, involving checks on whether the energy system was working as effectively as expected, the USBGC ruled that the firm did not provide adequate documentation.

For Goebel, the ambiguity in the rules would appear to discourage others from registering their buildings. Green building adds to the cost anyway, and the heavy paperwork involved in LEED certification adds even more to the expense.

"I think the LEED people aren't doing anybody any favors," Goebel says.

In fact, many of the materials Zachry used were 30 percent to 40 percent costlier than comparable traditional products; construction took at least six months longer, and the detailed documentation cost the project both time and money. Zachry officials won't specify how much the renovation cost, only that the building has been submitted for awards in "the under-$5 million" category.

Still, Zachry officials contend they are proud their building is the first to be LEED certified in San Antonio and are not appealing the ruling. And some of the professionals hired for the project say what they learned will benefit them in the future.

"Everyone realizes it's important to be familiar with sustainable design practices and LEED practices, so we consider it time well spent," says Carlos.

She adds that USGBC officials are also learning as the program develops. "It's a fairly new process for everyone including the (USGBC)," she says. For example, projects registered today would now fall under LEED-2.2, which is intended to improve upon the original LEED-2.1 -- which Zachry's project fell under.

Regardless of the cost, for David Zachry, the project was in line with the company's corporate values.

"Being environmentally sensitive is not inconsistent with being a good corporate citizen," he says. He points out that at the start most of the people working on the project knew little about LEED. "We paid for the learning curve."

Clark, the project manager, points out that the space offers the 45 people who work in the building a favorable workplace.

"A lot of things that surround this are for the people," he says. "They show up. They're more productive, and there are not any products off-gassing."

"I think it was important for our company because, in our community, it was the right thing to do," Clark says.