

ART OF SPACE

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architecture

Piling on the green, going for the gold

The new library at Santa Fe Preparatory School is a beauty, chock-full of green-principle materials and engineering.

There's nothing dramatic about the exterior appearance — low, horizontal massing with earth-tone stucco, flat roof, canales sprouting from the parapets, and long portales. "The campus started in the early 1960s, and it is in the historic district, so they wanted the exterior to be consistent with the other buildings," said architect Beverley Spears during a visit to the library. Spears Architects also designed the school's science wing and Commons, which were completed in 2001. "The interiors are evolving, more and more contemporary. Prep really wanted this to be a signature building on the interior," she said.

The library, which opened officially with the start of school Aug. 21, is strong on daylighting. Spears designed the building to make full

use of the sun, including the use of a spectacular "light-bouncing" ceiling in the main room.

The feature is made up of a grid of large, curved, white-maple baffles that reflect light from the lines of clerestory windows on both sides down into the library. The baffles slope down in the center to a long, wooden trough.

"The whole thing looks like an open book," said Mark Natkin, Spears' project manager.

The baffle panels, which are punctured with tight rows of cutout slots, were made by OGB Architectural Millwork in Albuquerque. Their fabrication was easy compared with the challenge of engineering and installing the ceiling, said Rick Thaler, president of OGB, who worked with Harrison Contracting on the project.

"The trough structure is constructed in several sections," Thaler said. "Each section is a curved frame with precision parts machined on our computerized router, covered with a skin of bendable plywood, and then veneered and finished."

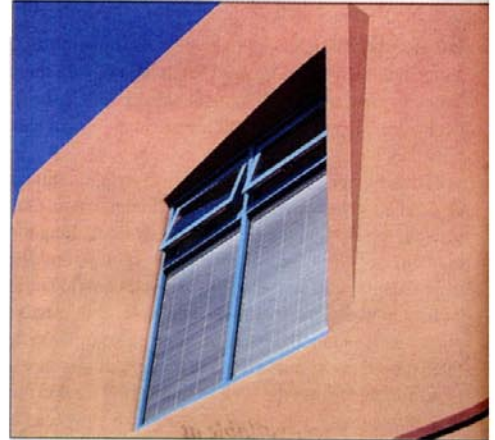
Inside the central trough are low-energy fluorescent lights that shine up to the baffles and down to the floor when needed. Like all the other lights in the building, they turn on automatically when ambient light falls below a certain level and turn off automatically when no one is in the room. Both features have fine-tuning adjustments.

The electric lights likely will be needed only at night. A week after school resumed, library director Jan Adesso said she had never seen them on.

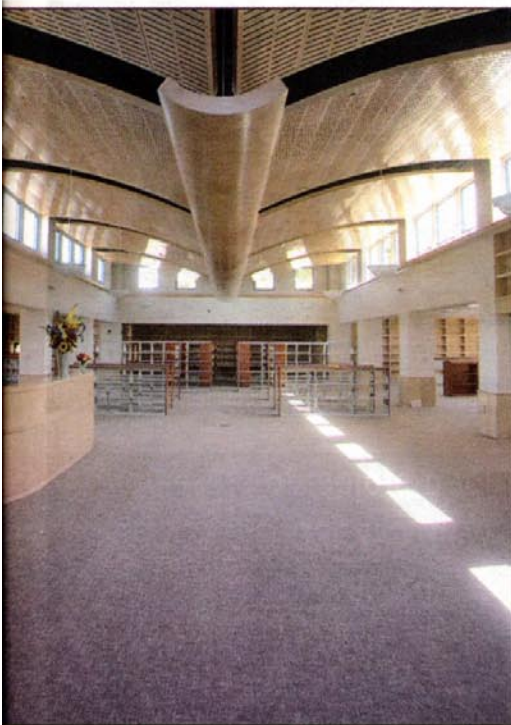
Natural light enters other areas of the building through Solatube skylights and lots of windows — more than 90 percent of the building's primary occupied spaces have a view of the outdoors.

The library is water-friendly, too. Spears Architects and John G. Rehders General Contractor used ultralow-flow toilets, waterless urinals, and efficient hand-washing fixtures, which are projected to save 108,000 gallons annually. Rainwater is collected in special roof drains and conducted through the building's walls to buried cisterns that store up to 14,000 gallons. The water is pumped to irrigate plantings on the campus.

Spears also specified low-toxicity paints, carpet, composite wood, and agrifiber. About 85 percent of concrete, steel, and other construction waste was recycled.



Above and top, architect Beverley Spears' angled shade-structures engineered for the library's west-facing windows



A view of the "open-book" ceiling at Santa Fe Preparatory School's new library

All images courtesy Spears Architects

Spears believes that these and other "green" features will qualify the library as the first LEED gold-certified building in New Mexico. LEED, or Leadership in Energy and Environmental Design, is a certification developed by the U.S. Green Building Council. "LEED is the first system where you can really quantify all the elements when you're doing sustainable building," said Spears Architects' Joe Snider, who was in charge of the green program for the Santa Fe Prep library.

LEED performance ratings range from certified to bronze, silver, gold, and platinum. If it is considered "gold," the library will be New Mexico's first building with that designation. The state has only two LEED buildings: PNM's IT Office Building in Albuquerque (silver) and

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the Baca/Dlo'ay azhi Community School in Prewitt (certified). There are only 15 platinum-certified buildings in the country.

Spears' application for gold certification is under review. "We hope we'll know by October," she said. "We believe we have satisfied 43 points, and the minimum for the gold is 39."

An anonymous donor launched the library's green initiative by bringing the energy-consulting services of the National Renewable Energy Laboratory to the project. NREL worked with the architects and engineers to develop the shape of the open-book ceiling feature. So did one of the school's science teachers, who took light readings during construction to find the best angle for the baffles.

Other architects have said the cost of certification is a disincentive to the LEED program. Snider said registration costs more than \$2,000 but that the real expense comes in documenting everything for the LEED-certification checklist. "We volunteered the time it took us, and that amounts to about \$20,000 in architectural fees," Spears said.

The return on all the elements of the certification comes in energy-cost savings over time and a healthier environment for everyone who uses the building. "That kind of payback can be a hard sell, but this is a school, and it's going to be here a long time," Snider said.

The 20,500-square-foot library has a skeleton of steel framing. A portal along the long front facade wraps around the east side, opening onto a flagstone-paved reading garden.

The building occupies an uneven site. At the front (west side), students walk up a few steps to enter the library or down a mild-grade, graveled ramp to the lower floor's language classrooms and the school's counseling department. At the back, the lower part of the building is bermed, a requirement of the site; it has the side benefit of stabilizing the temperature of the building, especially downstairs.

All rooms have individual thermostats and operable windows, allowing people to adjust comfort levels in each space. A night-flush cooling system — basically a pair of large roof fans — sucks hot air out of the building when everyone's gone. "There's a lot of thermal mass in a library," Spears quipped, referring to the books, which absorb heat during the day.

One of the school's science classes will monitor the building's energy efficiency as a project. Snider said meters on the library's electrical panels feed into a computer where the data can be used to create graphs.

Library patrons are welcomed by a row of glass entry doors with a sandblasted, horizontal band etched with the names of famous authors. A cosmetic feature that adds warmth just inside are the high shelves holding antique books. The main collection is stacked in built-in bookshelves and freestanding racks.

The furniture includes elegant but sturdy cherry tables and chairs selected by Adesso. The circulation desk and cabinets made by OGB are maple-veneered greenboard, a low-toxicity alternative to conventional particle board. The building also has wireless Internet access.

The five study carrels are very popular, Adesso said. They're nestled into the built-in wall stacks in a quiet corner of the library, and each carrel desk faces a window.

Even the carpeting is "smart." Its "tiles," about a yard square, have a tacky backing that requires no adhesive. Installing them went very fast, and they're great for maintenance because a tile with a bad stain can just be replaced. Prep bought some extra ones, just in case.

Although the new library is pretty traditional "Santa Fe style" on the outside, one feature stands out: Spears designed angular "eyebrow" features on the tops and south sides of the windows on the west side of the building to cut summertime solar gain in the language labs. And since they're not visible from the street, they were OK with Santa Fe's historic-district design cops. ◀