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THE GREENING OF MUSEUM ARCHITECTURE

Using recycled materials, energy-saving skylights, environmentally friendly air-conditioning, and even discounts for visitors who arrive on bikes, museums are becoming more sensitive to the environment

BY STEVEN LITT

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ith its austere geometric forms and broad expanses of concrete, the new Grand Rapids Art Museum in Michigan has a classic Modernist appearance. The design by Los Angeles architect Kullapat Yantrasast evokes a long line of art museums in the United States, from I. M. Pei's East Building for the National Gallery of Art in Washington, D.C., built in 1978, to Tadao Ando's 2002 Modern Art Museum of Fort Worth.

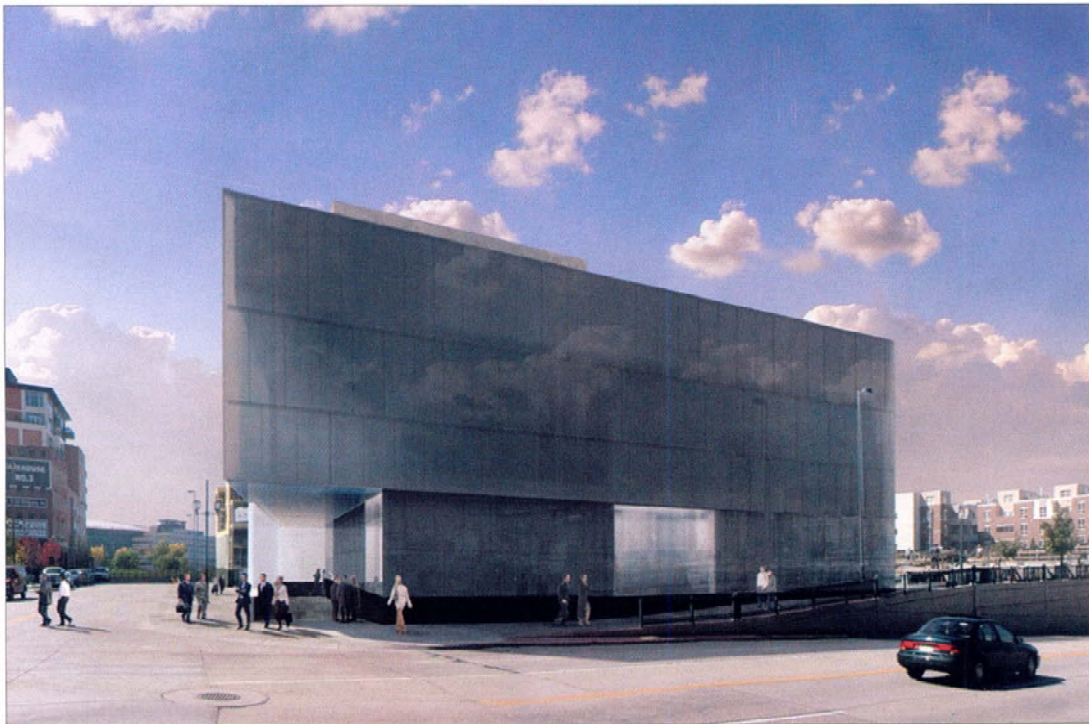
But in ways that are less obvious to the eye, the Grand Rapids Art Museum (GRAM) is part of a growing global revolution in green architecture and represents the newest trend to hit art-museum design in the United States. Officials at GRAM expect that when their building opens on the 5th of this month, after three years and at a cost of \$60 million, it will be the first newly constructed art museum to have been certified by the Leadership in Energy and Environmental Design (LEED) program of the nonprofit U.S. Green Building Council.

LEED is the industry standard in the United States, under which independent analysts rank finished buildings according to various criteria, including energy consumption, the use of recycled and locally manufactured materials, and the elimination of toxic fibers, glues, paints, and varnishes. The evaluators are also concerned with the recycling of construction waste and the extent to which the project promotes environmental awareness.

Buildings are rated on a scale from certified, the most basic level, to silver, gold, and platinum. The Grand Rapids Art Museum, an encyclopedic institution with more than 5,000 objects ranging from prints by Albrecht Dürer to paintings by Pablo Picasso and Richard Diebenkorn, could win a gold rating in about six months, after the council's consultants measure its performance. Meanwhile, another gold aspirant is the new Museum of Contemporary Art Denver, designed by the 41-year-old London-based architect David Adjaye, which will function as a Kunsthalle, without a permanent collection. The \$16 million, 27,000-square-foot building opens the 26th of this month, and it is being touted as the first new contemporary-art museum in the United States to be LEED certified.



The new, "green" Grand Rapids Art Museum, designed by Kulapat Yantrasast, with Maya Lin's sculpture *Ecliptic*.



Denver's environmentally sensitive Museum of Contemporary Art, designed by David Adjaye.



TOP The new Alvin Ross Wing (left) of the Provincetown Art Association and Museum, and the original building (right).
ABOVE Renovated gallery in the historic structure. The Boston firm Machado and Silvetti oversaw the construction and renovation.

Expansions, too, are eligible for LEED ratings. Last year the Provincetown Art Association and Museum won a silver designation for a 9,000-square-foot addition, designed by the Boston firm Machado and Silvetti.

In the seven years since the U.S. Green Building Council started its LEED program, about 1,000 buildings of all types have earned rankings, and another 7,000 worldwide have registered to participate, says Judith Webb, a spokesperson for the council. Of that number, roughly 100 are described as "interpretive centers," a category that includes art museums. Webb adds that the organization doesn't track art museums specifically.

Other U.S. art museums are striving for LEED certification. Administrators at the Art Institute of Chicago, for one, hope to earn a LEED silver rating for the institute's \$200 million Renzo Piano-designed wing, which is scheduled for completion in 2009. The Museum of Contemporary Art Cleveland will seek a LEED rating for a new building being developed with Farshid Moussavi of the London-based firm Foreign Office Architects. Currently in the planning stage is the Virginia Museum of Fine Arts' 165,000-square-foot expansion and a 35,000-square-foot renovation project. Under the direction of architects Rick Mather + SMBW and their consultants, the museum will transform an asphalt parking lot into a sculpture garden and add an energy-efficient air-displacement ventilation system to its building, both of which meet LEED criteria.

Still more museums are using their existing spaces in creative, earth-friendly ways, even when certification is not the goal. The Indianapolis Museum of Art covered the roof of a parking garage with soil and plants to reduce storm-water runoff, and it may put solar cells and a green roof on top of its main structure. "Our hope," says director Maxwell Anderson, "is that by building on our parking garage, which has the largest green roof in the state, we can achieve a combination of green practices and energy conservation."

Until recently, museums in this country have been slow to embrace green design, fearing extra costs as well as complications that could make it difficult to maintain the strict temperature and humidity controls necessary to protect works of art.

Thanks to a growing number of conservation-minded philanthropists, museums are getting increasing support for their initiatives. The push to go green in Grand Rapids came from Peter Wege, who pledged \$20 million to a \$73 million capital campaign on the condition that the museum pursue an environmentally sensitive design. The GRAM uses a wide range of features and techniques that are intended to make it particularly "earth-friendly."

Yantrasast, a 38-year-old native of Thailand and a former protégé of Ando, specified that much of the concrete and stone should come from local suppliers, thereby reducing transportation costs and fuel consumption. An innovative air-conditioning system with filters 12 feet in diameter will cut energy usage. The oak planks of the gallery floors came from suppliers in the Pacific Northwest who practice sustainable forestry instead of destructive clear-cutting. Recycled water from rain and snow is being used for toilets, outdoor irrigation, reflecting pools, and a "water wall." And finally, energy-saving skylights have been installed to protect artworks from ultraviolet rays while bathing the galleries in daylight.

"It's part of a total picture of a green city," says museum director Celeste Adams. "The museum by its nature is an artifi-

cial environment. But we're trying to break down barriers between it and the environment around it. It's all one planet."

Similarly, the Museum of Contemporary Art Denver made green design a cornerstone of its new building from the beginning. Director Cydney Payton says she and her trustees wanted to connect the moral and social messages of the artworks inside the museum with the architecture of the building itself. "The public is hungry for projects that are not only elegant but socially responsible," she points out. "We wanted to focus on the role the museum could play in the community, not just an insular mission."

The four-level, 27,000-square-foot structure is roughly rectangular, with a luminous facade of pale gray glass. Its surface is really a "double skin"—glass on the outside and a



The Indianapolis Museum of Art features a parking garage with a roof garden that conserves energy and reduces storm-water runoff.

layer of MonoPan, a translucent plastic, on the inside. The two layers flank a continuous two-foot-wide cavity, which wraps around the building to create an insulating blanket of air. The design will cut energy consumption by 40 percent, Payton says.

Education and membership spaces occupy pavilions that extend through the museum's roof, which will be planted and landscaped as a garden to provide insulation and to reduce rainwater runoff. Galleries on the top floor are like buildings within a building, with their own insulated walls. They receive natural light through special skylight "lanterns" that project through the roof.

Adjaye says green design is not simply about technology, but about changing people's behavior. Consequently, the museum will offer discounts to visitors who show rail or bus cards when they arrive, or who come via bike or skateboard. The building also includes a shower for employees so they can freshen up after walking or bicycling to work. "When it becomes holistic and about changing the habits that we have, we're going in the right direction," Adjaye says. "That's what it's all about." ■