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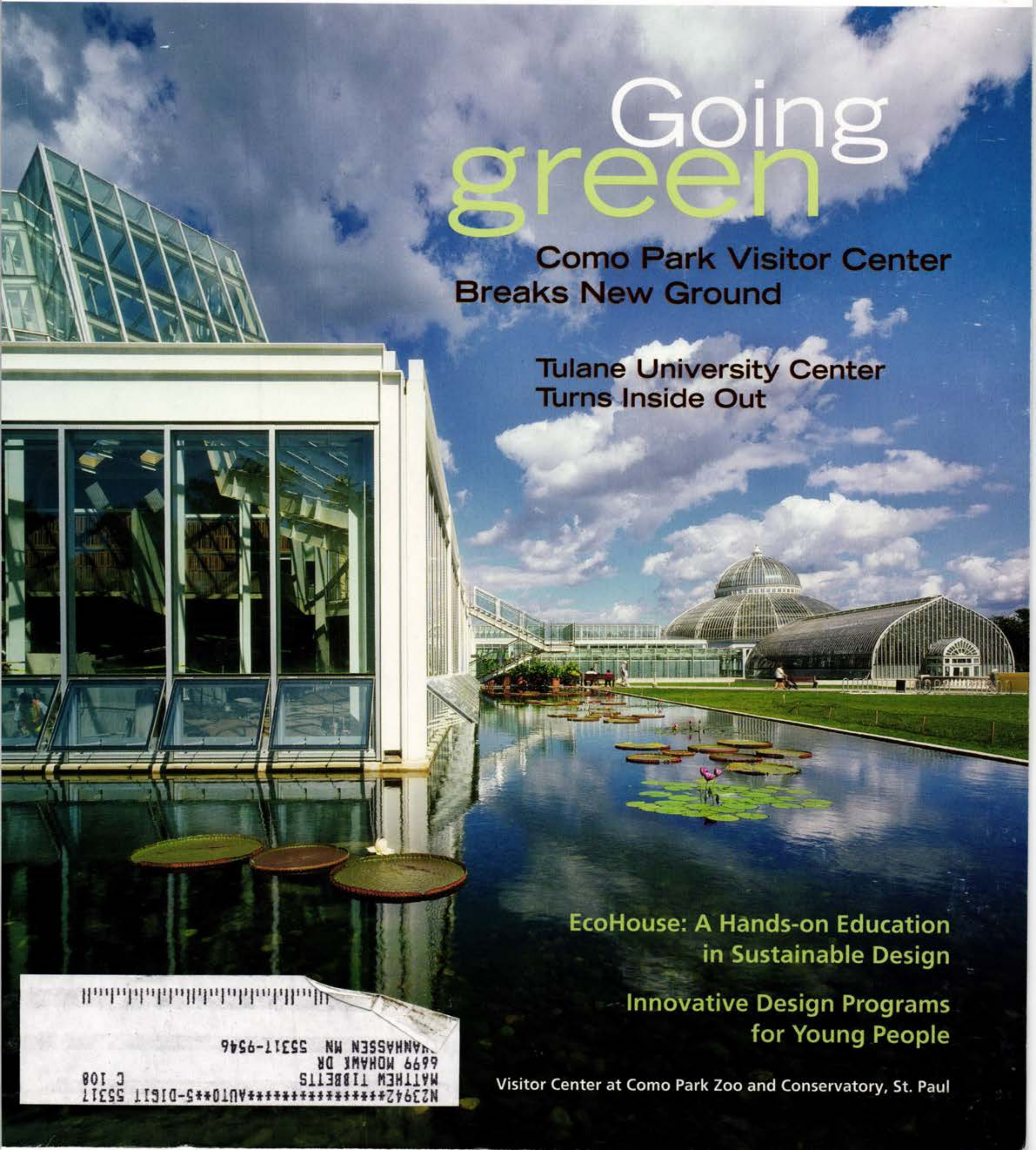

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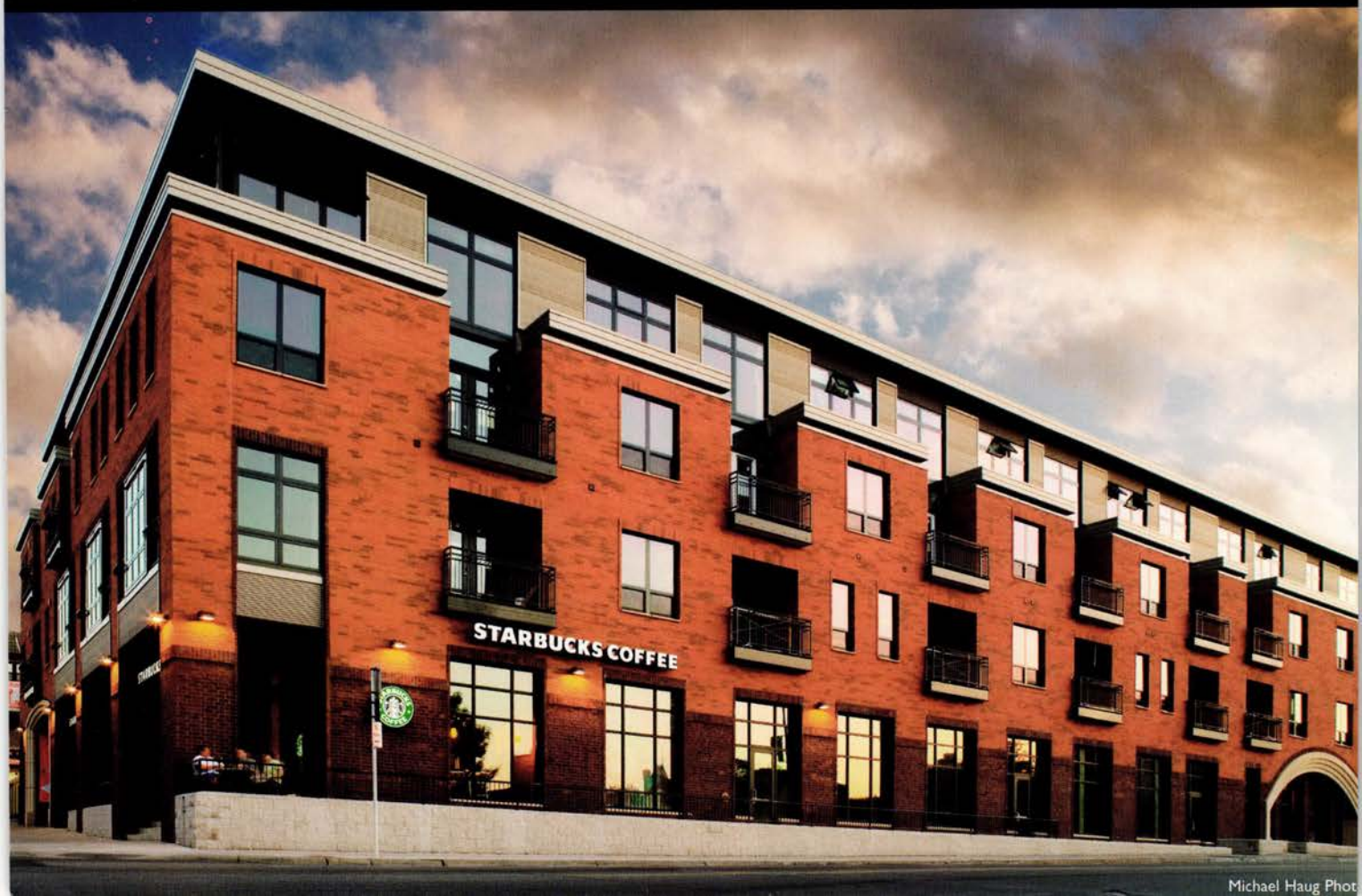

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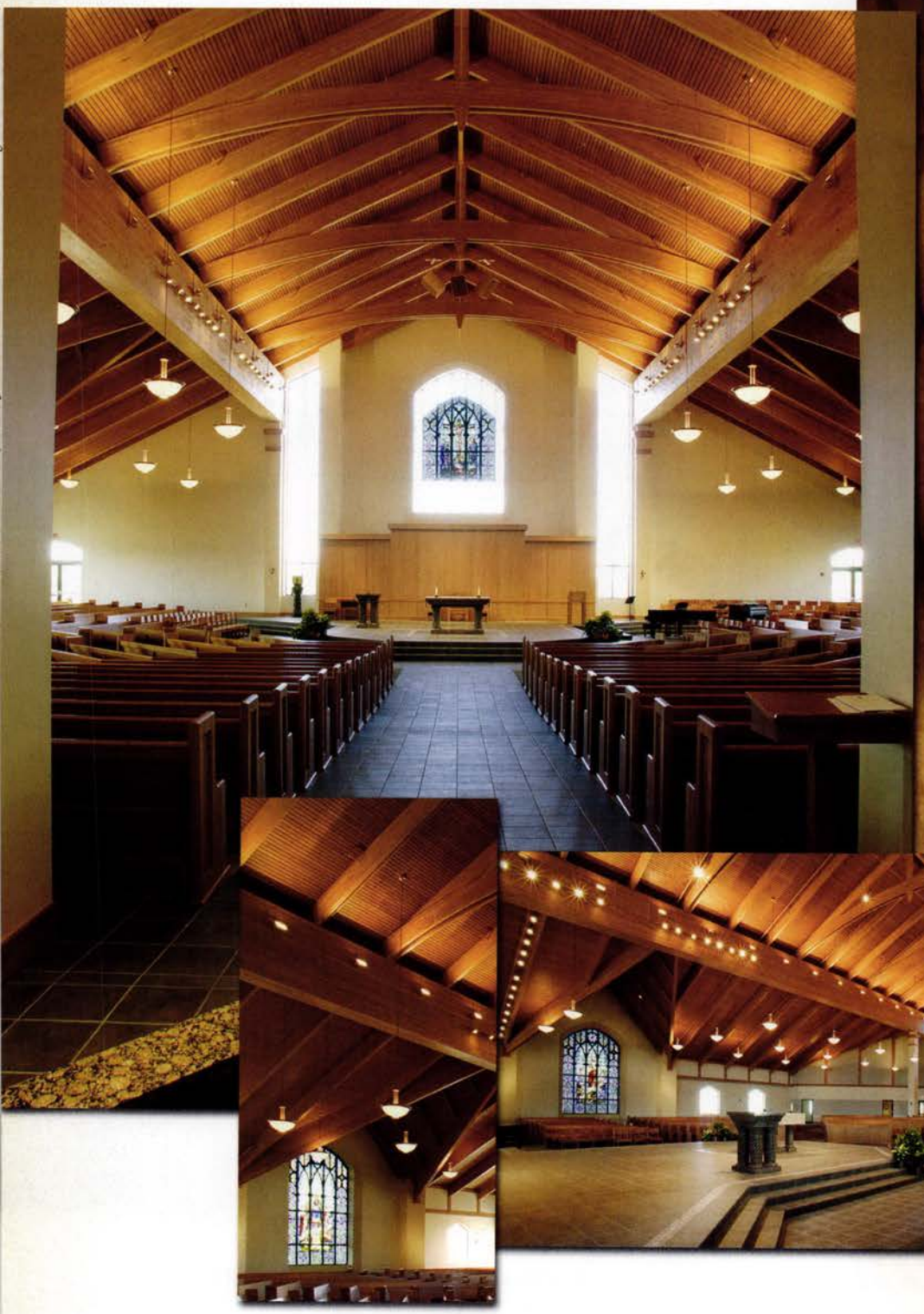

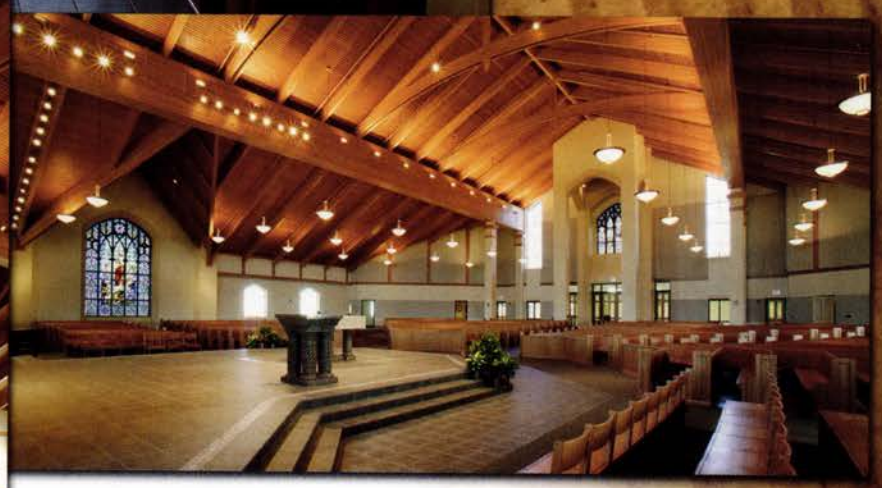

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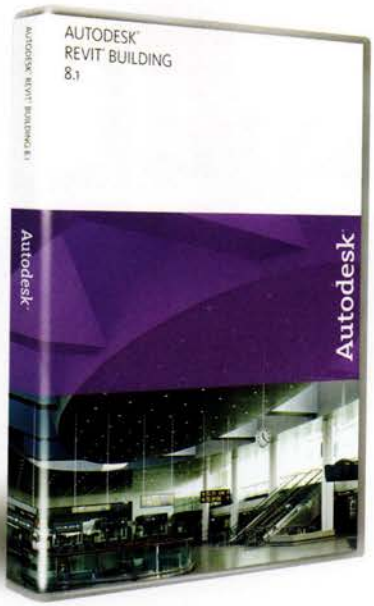

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Architecture
MINNESOTA

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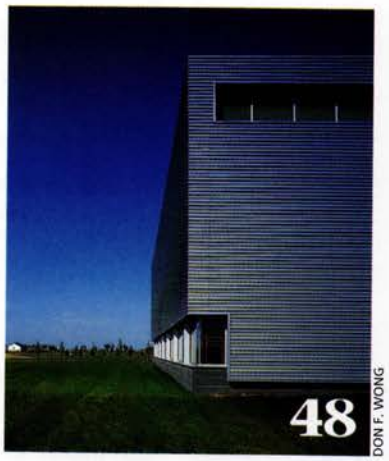

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Mission Statement

Architecture Minnesota, the primary public outreach tool of the American Institute of Architects Minnesota, is published to inform the public about architecture designed by AIA Minnesota members and to communicate the spirit and value of quality architecture to both the public and the membership.

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A Green Education

Green architecture looks and feels different, which makes it a great tool for explaining how buildings work and the impact they have on the environment. It piques our interest, puts us in a learning frame of mind. That we often encounter it in interpretive centers and schools should come as no surprise; learning and sustainability are mutually affirming endeavors.

A notable example of a sustainably designed educational facility is Science House, a permanent attraction on the campus of the Science Museum of Minnesota in St. Paul. Designed by Barbour LaDouceur Design Group and energy-consulting firm The Weidt Group to meet all of its own annual energy needs, Science House is green to its core. Solar cells on the standing-seam metal roof power the 1,000-square-foot building, and a heat pump circulates nontoxic fluid through plastic tubes deep into the ground, bringing up the Earth's heat in winter and dissipating heat into the Earth in summer. Energy-efficient south-facing windows and clerestories take full advantage of solar heat gain in winter and reduce the need for artificial lighting year-round.

Of course, reading about a green building is one thing; experiencing it is quite another. Science House visitors—many of them children—are greeted by alternative building and energy strategies everywhere they look. In the intimate Science House classroom, students ask about the unfamiliar ceiling material: a renewable fiberboard made of sawdust and glue. Outside, eyes are drawn to the black solar roofs, bright-red electrical-current inverters on the side of the gray building, and an energy meter that rolls *backward* on all but fully overcast days. "There are so many things to point to and talk about," says architect Janis LaDouceur, AIA. "And you know what's fun? High overhead are these huge power-line towers, and then there's our little building with the meter running backward."

The educational projects profiled in this issue range in the degree to which they embrace sustainable design—Como Park Visitor Center (page 32) is a standout in the way it honors the plant ecologies it showcases—but all announce their green intentions in one way or another. Beautifully integrated daylighting, natural heating and cooling systems, and renewable materials make the inhabitants of these buildings aware of what architecture can achieve when human and environmental well-being is the focus.

It's especially heartening to see clients—cities, universities, school districts—who are interested in and increasingly knowledgeable about conservation issues. Change is in the air.

Christopher Hudson
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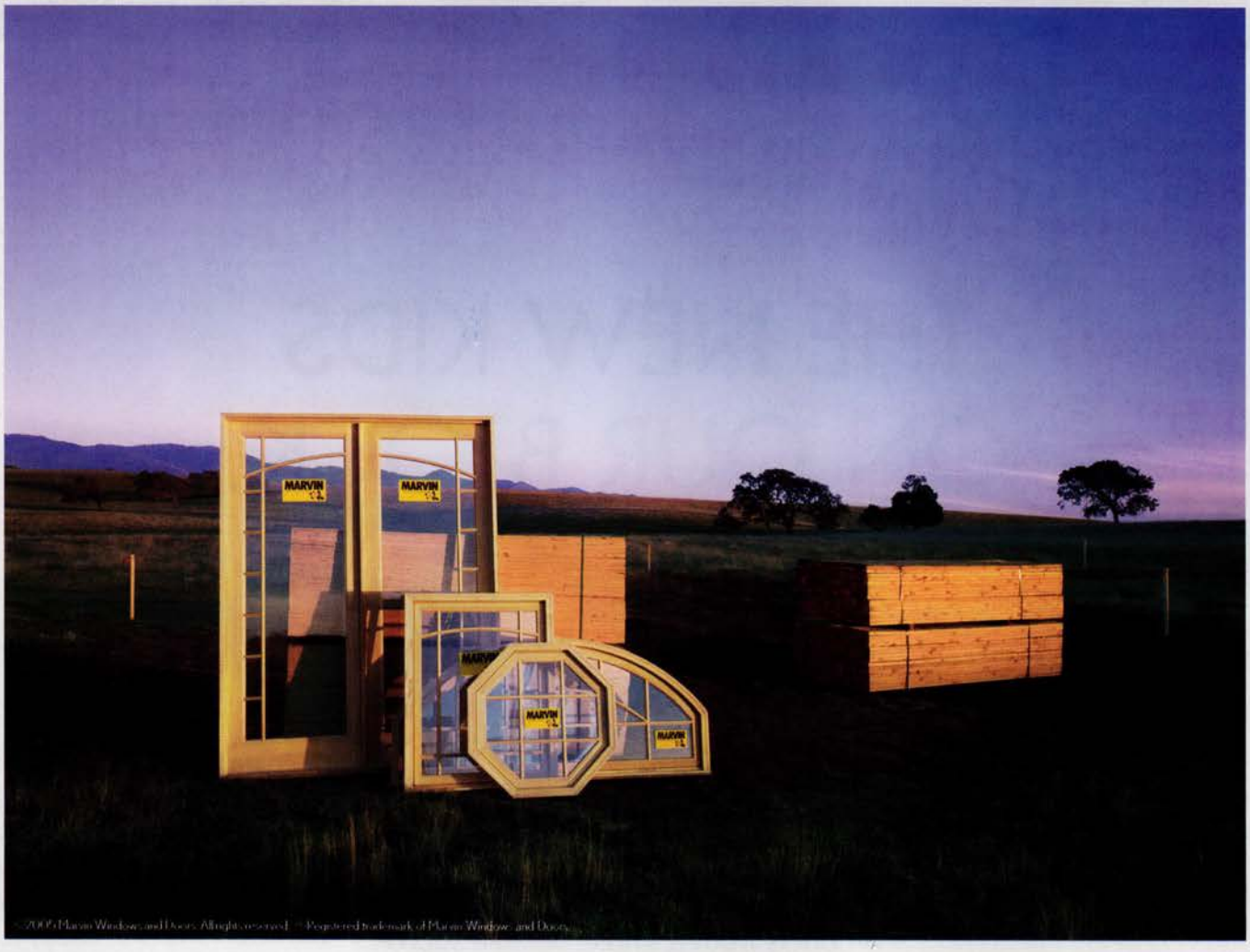

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Calendar

November 15–18

AIA Minnesota 71st Annual Convention & Products Exposition
Minneapolis Convention Center
Minneapolis, Minnesota
612-338-6763
www.aia-mn.org
Nearly 2,000 architects, landscape architects, interior designers, engineers, and other design professionals attend the convention, which features a large exhibit hall and a wide array of educational programs. See details on page 13.

December 2

AIA Minnesota Awards Celebration
McNamara Alumni Center
University of Minnesota
Minneapolis, Minnesota
612-338-6763
www.aia-mn.org
AIA Minnesota's annual banquet will celebrate excellence in architecture by recognizing this year's winners of the Firm Award and Honor, Divine Detail, Special, and Louis Lundgren awards.

Opening December 3

Cityscapes Revealed: Highlights from the Collection
National Building Museum
Washington, D.C.
202-272-2448
www.nbm.org
Rare, early 20th-century photographs, detailed drawings, and original building fragments of historic landmarks will be featured in a first-time survey of the National Building Museum's permanent collection. Celebrating the museum's 25th anniversary, the exhibit documents evolving American architectural styles, construction techniques, and material preferences.

Opening December 9

Fashion in Colors
Cooper-Hewitt National Design Museum
New York, New York
212-849-8400
www.cooperhewitt.org
Organized by the Kyoto Costume Institute, the exhibition explores color as a design element in Western fashion from the 17th century to the present, as well as changing perceptions of color through various ages and cultures. Costumed mannequins organized by color (black, blue, red, yellow, multicolor, and white) emphasize the cultural, spiritual, and social associations of each color. Cooper-Hewitt will be the first museum outside Japan to present the exhibition.

INSIDER LINGO *By Gina Grensing*

Cafetorium

Today's fast-paced lifestyle makes multitasking a necessity. Consider how common it is to see motorists talking on their cell phones or eating a quick meal. The multitasking cafetorium—a large room usually in an educational setting designed to serve as both a cafeteria and an auditorium—allows students to attend school functions while eating lunch. In addition to being a money- and/or space-saver, the cafetorium is more acoustically refined and aesthetically pleasing than a gymnasium, where school functions might otherwise be held. With a separate exterior entrance, this multi-purpose space can host community events while the rest of the school is locked, and portable seating creates additional flexibility. The hard-working cafetorium has been around since the mid–20th century. ❖

AIA Minnesota's 2005 Annual Convention & Exposition

Pass it on

The AIA Minnesota annual convention offers engaging keynote presentations, high-quality continuing education programs, a large products expo, and many special exhibits and activities. This year's conference will be held November 15–18 at the Minneapolis Convention Center. The theme, "Pass It On," focuses on sustainable and environmentally friendly solutions to building challenges and the difference current design professionals can make for generations to come.

Keynote presentations include:

- "The Evolution of Architecture," presented by **Kate Schwennsen, FAIA,** 2005 first vice president/president-elect of AIA national, and associate dean of Academic Programs of the College of Design at Iowa State University, Ames.

- "Dangerous Design: Sustainability, Security, and the Education of a Profession," presented by **David W. Orr,** professor of environmental studies and politics, and chair of the Environmental Studies Program at Oberlin College, Oberlin, Ohio.
- "Architecture and Control: The Architect as Masterbuilder in the Urban Environment," presented by **Jonathan Segal, FAIA,** architect/developer, and owner, Jman Development Companies, San Diego, California.
- "If You Aren't Getting Better, You Won't Stay Good," presented by **Dr. Gerry Faust,** president of Faust Management Corporation, San Diego, California.

In addition to these presentations, this year's AIA Minnesota Honor Awards jurors—**Kirk V. Blunck, FAIA,** principal-in-charge, Herbert Lewis Kruse Blunck, Des Moines, Iowa; **Lawrence Scarpa, AIA,** principal and cofounder, Pugh + Scarpa, Santa Monica, California; and **Karen Van Lengen, AIA,** dean of the School of Architecture, University of Virginia, Charlottesville—will talk about their practices through a presentation of their work. ❖

SALA Architects Receives 2005 Firm Award

AIA Minnesota has selected SALA Architects to receive its prestigious Firm Award for 2005. Given biennially, the award is presented to firms that have contributed to the advancement of the profession in the areas of technology, service, and design.

Founded in 1983 and now encompassing three Twin Cities–area offices, SALA focuses on residential work, designing new and remodeled homes infused with the architectural character and craftsmanship of the past for thousands of clients across the country. Their work has been widely featured in print and on local and national radio and television, and has garnered numerous awards, including AIA National and Minnesota Honor Awards, a *LIFE* magazine Home of the Year, AIA Minnesota/*Star Tribune* Home of the Month selections, and AIA Minnesota/*Mpls.St.Paul Magazine* RAVE Awards. SALA also received the Rising Star Award from *Residential Architect* magazine.

"Winning a design award is one thing," says founding principal **Dale Mulfinger, FAIA,** "and winning a firm award is quite another. I know how hard it is to assemble a human institution that balances the dignity and responsibility of honest labor in pursuit of inspired work. For one's peers to spontaneously step forward and salute you for your effort . . . well, that rouses a chest full of pride, and some tears of humility, and a lot of thanks to all who helped make it happen."

SALA will be honored at the AIA Minnesota Awards Celebration on December 2 at the University of Minnesota's McNamara Alumni Center in Minneapolis. ❖

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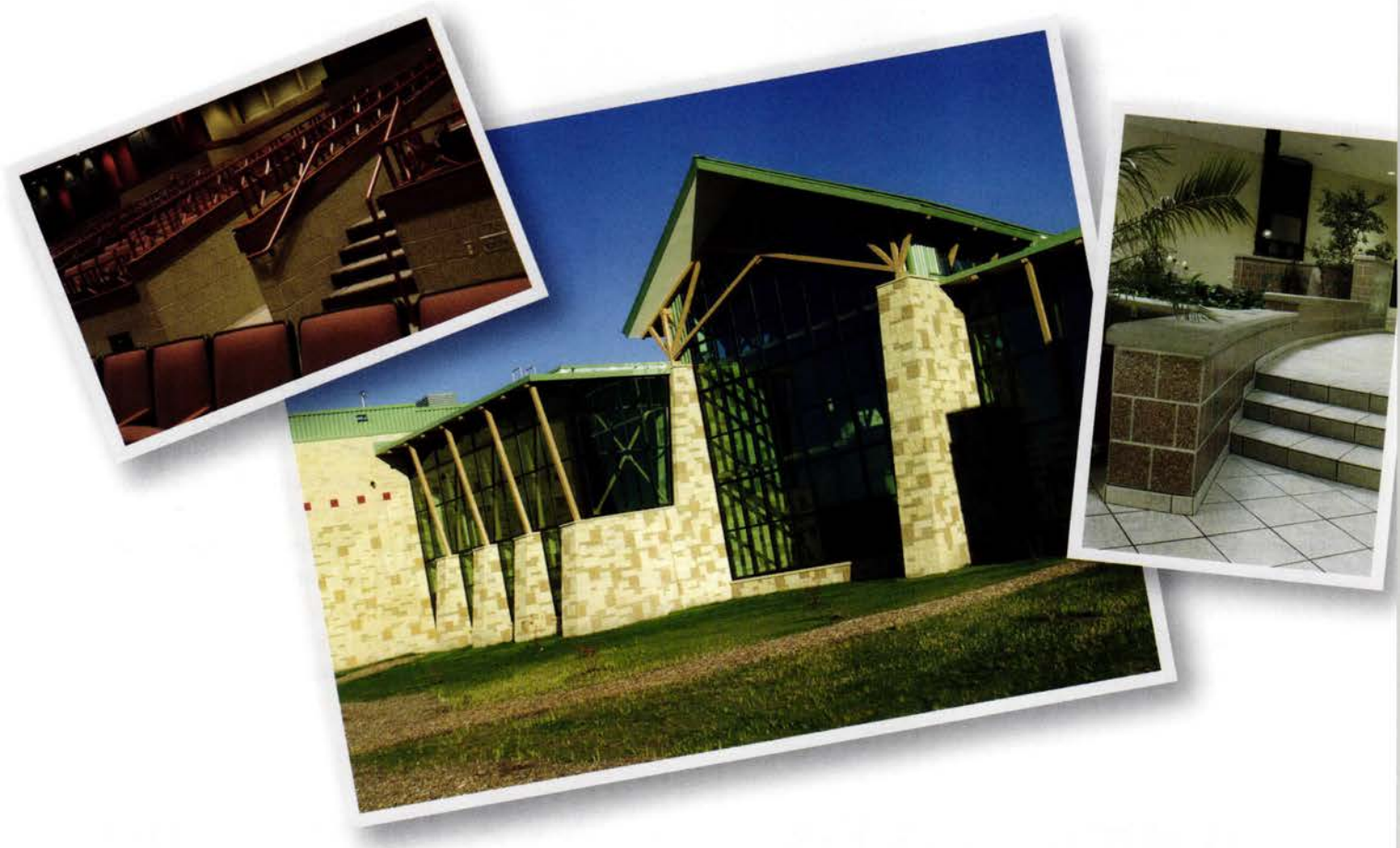

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AIA Minnesota 25-Year Awards

Two venerable buildings have been chosen for this year's AIA Minnesota 25-Year Award: Landmark Center in St. Paul and the Humanities and Fine Arts Center on the campus of the University of Minnesota–Morris. The latter building was designed in the early 1970s by Ralph Rapson & Associates, Minneapolis. Landmark Center, constructed in 1902, was renovated in 1978 by Winsor/Faricy Architects, St. Paul (now Collaborative Design Group, Minneapolis).

AIA Minnesota established the 25-Year Award in 1981 to recognize exemplary architectural projects, 25 years or older, that have withstood the test of time. This year's jurors—Vincent James, FAIA, of VJAA, Minneapolis; Nina Ebbighausen, AIA, of Architectural Alliance, Minneapolis; and Leon Satkowski, professor in the University of Minnesota's College of Architecture and Landscape Architecture—judged seven submissions based on information assembled in a binder by the architectural firm. Social impact, complexity of program, and current physical condition were the main criteria for weighing each entry's architectural importance. The winning architects and clients will be honored at the AIA Minnesota Awards Celebration on December 2

Humanities and Fine Arts Center, University of Minnesota–Morris

RALPH RAPSON & ASSOCIATES

A long brick building distinguished by a series of projecting clerestories, the Humanities and Fine Arts Center houses the university's speech communication, theater arts, music, and fine arts departments. The complex was constructed in three phases but functions and appears as a cohesive whole. Completed in 1974, it won an AIA Minnesota Honor Award the following year; the Honor Awards jury described the Arts Center as a "distinctive, expressive complex, clearly organized, with good scale," offering a "stimulating yet unimposing environment for students." The 25-Year Awards jury was equally impressed: "The Center still fits well into its narrow site and connects well to other spaces on campus. It has a utilitarian simplicity yet incorporates quality materials and integrates them with finesse." So successful was Ralph Rapson's original design that few changes have been made to the building, and the complex still functions as an integral part of the campus.

Landmark Center

DON F. WONG

The castle-like Landmark Center in downtown St. Paul originally served as a federal courthouse and post office. After nearly being demolished to make way for a parking structure in the mid-1970s, the building was elegantly restored by Winsor/Faricy Architects to serve as an arts center and special-events facility. The transformation was so successful that Landmark Center won an AIA Minnesota Honor Award in 1979. One Honor Awards juror called the renovation, which included extensive refinishing of interior surfaces, fireproofing, and all-new plumbing, electrical, and mechanical systems, "a major preservation project executed with sensitivity and a minimum of intervention." The 25-Year Awards jury concurred, saying, "The building is enhanced by the lasting restoration; the use of color is unique and highlights original details. It was an important project for its time—few preservation projects of this scope were pursued in the 1970s—and remains today a living, breathing space full of community organizations and activities." ❖

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PROJECT PROFILE

New Community Shelter

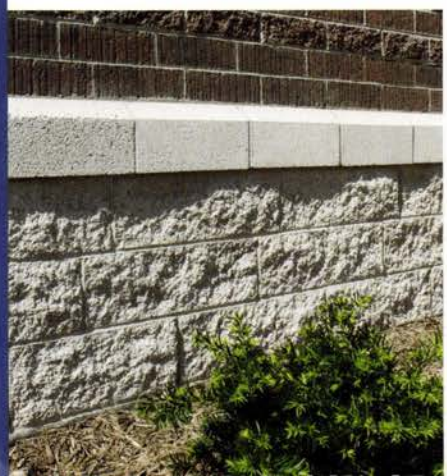
Green Bay, Wisconsin

The New Community Shelter in Green Bay used both splitface and smooth styles of Optimum Series™ Oversize concrete masonry units. These facings are mixed with smooth Horizon™ sill block and Heritage Collection™ concrete brick, in both splitface and striated, for a diversity of scales and textures.

Shelter 'optimizes' its role in community

Green Bay, Wis. – A demographic often overlooked by society can now proudly reside in the community's mainstream thanks in part to a conscientious mix of materials and scales on the New Community Shelter in Green Bay.

Dave Dolan-Wallace of Martinson Architects mixed more than 800 Optimum Series™ Oversize concrete masonry units in Premium White with a splitface finish, with regular-size splitface CMUs.



THE OPTIMUM SERIES™

"We wanted something that would look more like stone to replicate the old downtown of Green Bay," Dolan-Wallace said, "but without breaking our budget."

The Optimum Series CMUs comprise the top half of the 28,300-square-foot building, forming a rising and falling line with more than 11,000 units of the darker, Coffee Blend color of Heritage Collection™ Series designer concrete brick beneath it. The border between the two distinct colors and types of masonry is set off by smooth-face Optimum Series block.

"The scale of the building demanded different solutions," said Dolan-Wallace, who also used 690 units of smooth-face Horizon™ block to emulate the look of stone as sills and skirting for the structure. "The building is basically rectangular, so we wanted to give it a human scale. The people who go there are destitute; we wanted to appeal to their basic human needs. Otherwise it would just look like a big brick warehouse."

Dolan-Wallace noted the appeal of masonry would convey a friendlier ambience.

"We had to 'sell' the building to some major donors," he said. "And Optimum Series block gave us flexibility without adding significant cost."

And, instead of a cold warehouse, the structure looks like the temporary shelter and transitional housing facility it's meant to be; its exterior conveying a sense of warmth and comfort that welcomes all in need.

Profiles in Design™

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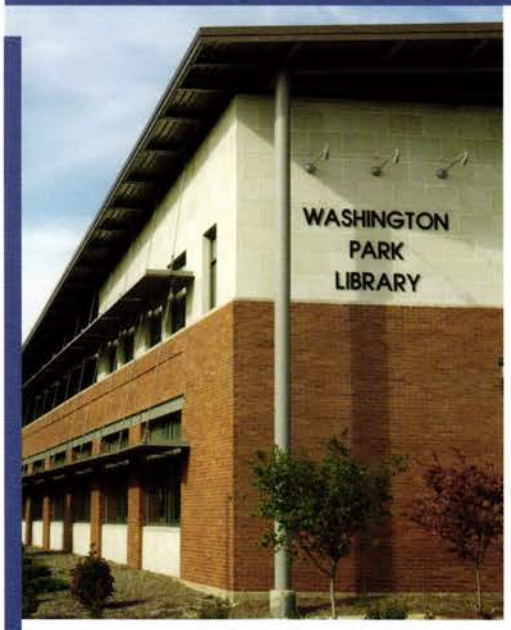
PROJECT PROFILE



Designers of the Washington Park Library liked the scale shift from the modular brick to the Light Frost-colored Optimum Series™ Oversize concrete masonry units. The materials lend a unique personality to each layer.

'Oversize' neighbor fits in just right

Washington Park Library

Milwaukee, Wisconsin

One never knows how a new neighbor is going to fit in.

But thanks to architects' choice of Optimum Series™ Oversize concrete masonry units, the Washington Park Library is replacing its predecessor with a sensibility and style that meld seamlessly with the historic district in which it resides.

Designer Joy Peot-Shields, along with HGA Architects, in Milwaukee, chose 2,100 units of Optimum Series Oversize block in Light Frost with a Premier Ultra® Burnished facestyle. Peot-Shields used the Optimum Series Oversize on the top half of the building at one end, and rust-colored brick that wraps around the bottom half. The roof slopes dramatically downward from the street that runs across the front of the building. This allows for a second floor which covers about one-third of the 20,000-square-foot structure.

"It features layers, with one layer slipping behind the other," Peot-Shields said. "The brick is the outermost plane, then the Optimum Series block is the next scale back. I like the scale shift of the modular brick to the Optimum Series Oversize block. It helps define each layer.

The Optimum Series units are really appropriate for civic buildings like libraries, schools ... which are so often built out of cut stone, and on a larger scale."

PRODUCT PROFILE

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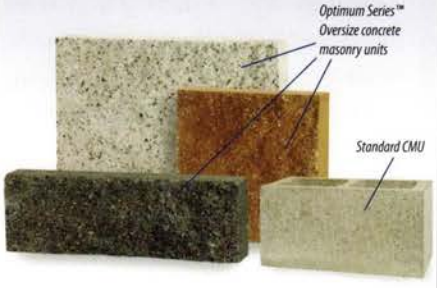

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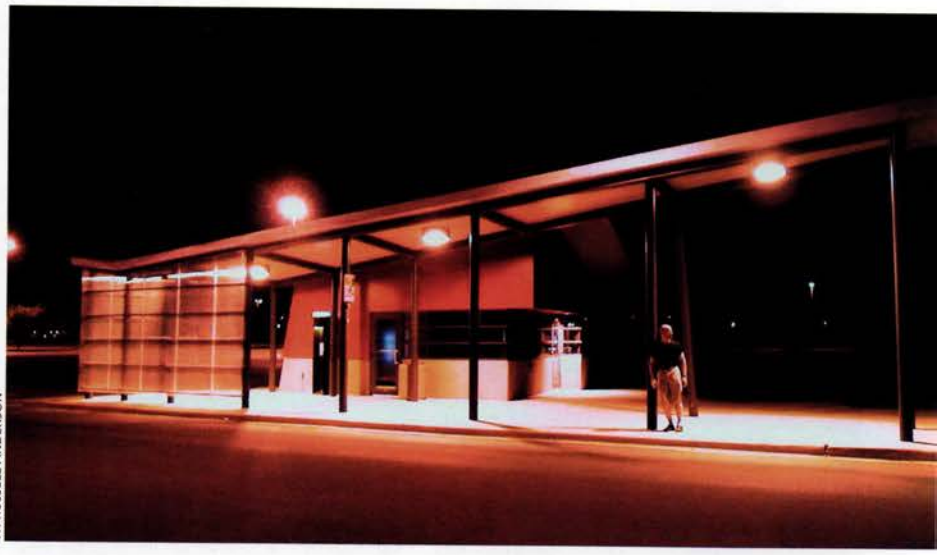
AIA Minneapolis Merit Awards

AIA Minneapolis recently announced the four winners of its 2005 Merit Awards program. The 16 submitted projects were judged on technical innovation, client/team satisfaction, environmental responsibility, budget/business success, community impact, and design excellence. This year's jury included Mark Swackhammer of the University of Minnesota's College of Architecture and Landscape Architecture; Renee Kirscht Rascher of the real estate consulting firm Nelson, Tietz & Hoye; Bruce Wright, editor of *Fabric Architecture*; AIA Minneapolis president Ken Stone of Kodet Architectural Group; and Larry Lee, director of community development for the City of Bloomington. The jury selected the following winners:



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Ames, Iowa
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CARGILL BUILDING FOR MICROBIAL AND PLANT GENOMICS
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Architectural Alliance, Minneapolis

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EDINA CITY HALL AND POLICE FACILITY
Edina, Minnesota
BKV Group, Minneapolis

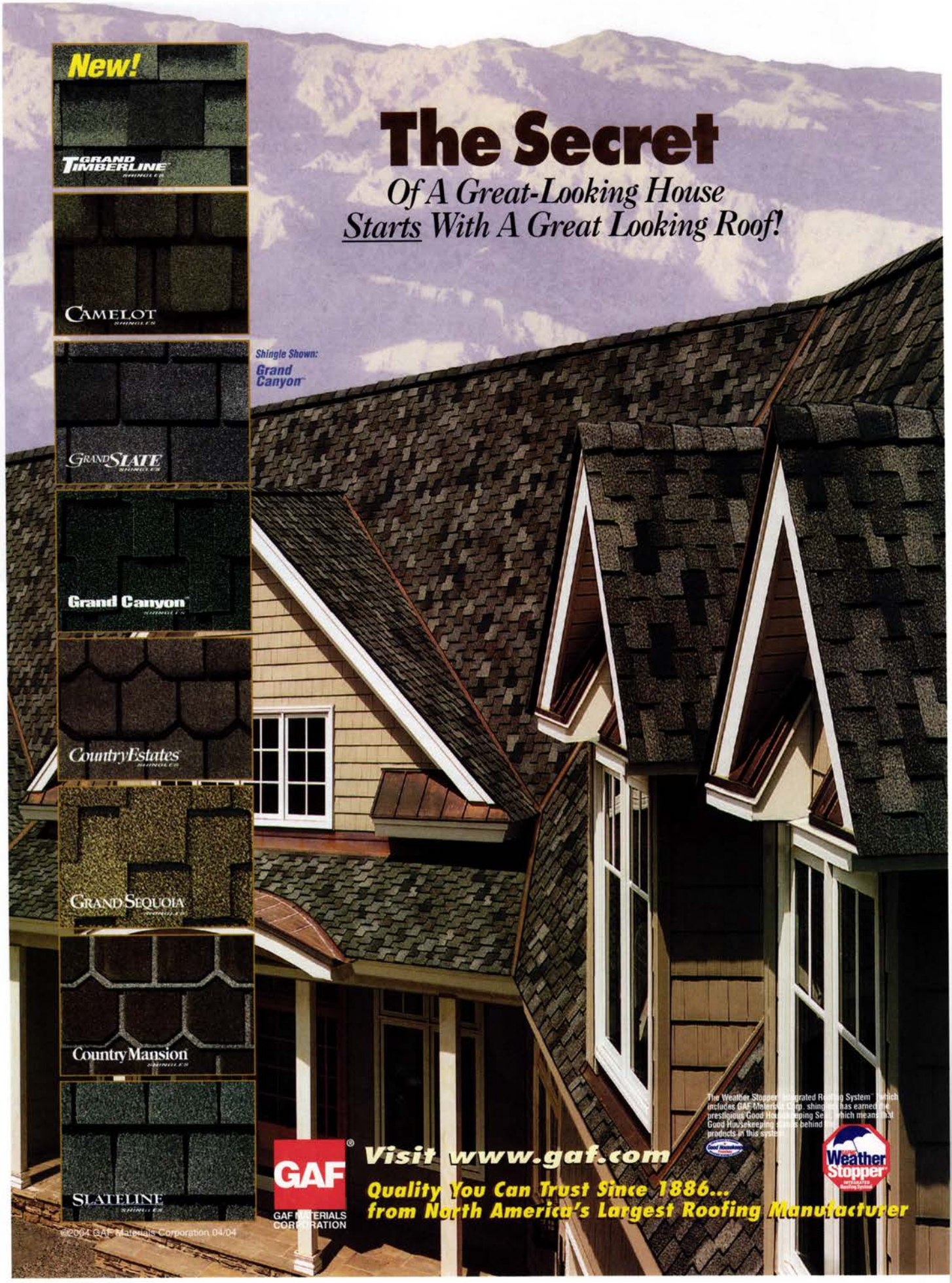
"A strong civic building with a presence. The design is a source of great pride for the community."

SUMNER COMMUNITY LIBRARY
Minneapolis, Minnesota
KKE Architects, Minneapolis

"A sensitive and appropriate addition to the original library. It's had a very positive impact on its north-side community."

JIM MORNES, AIA

Above: Cargill Building for Microbial and Plant Genomics
Top right: Iowa State University Transit Shelter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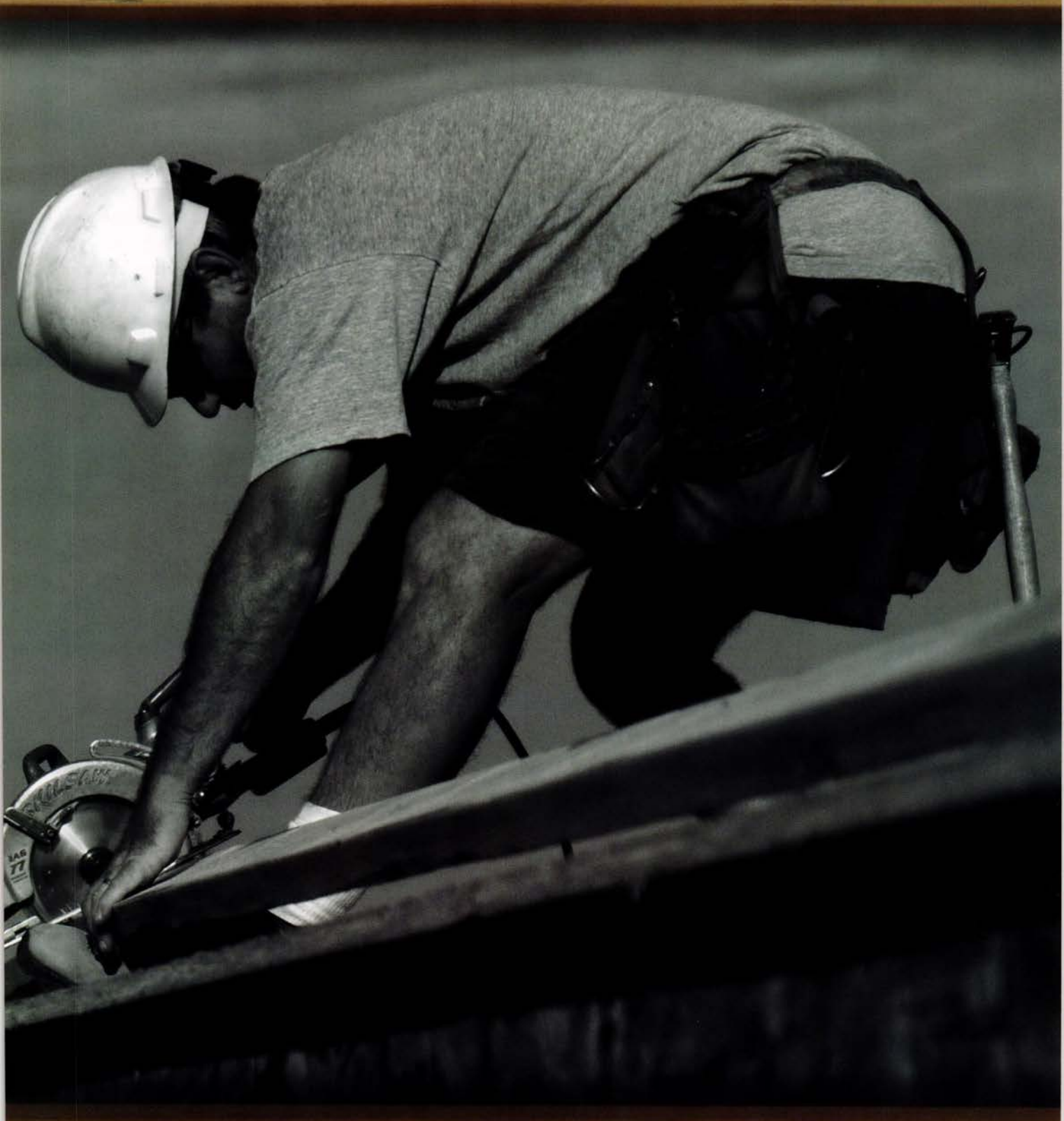

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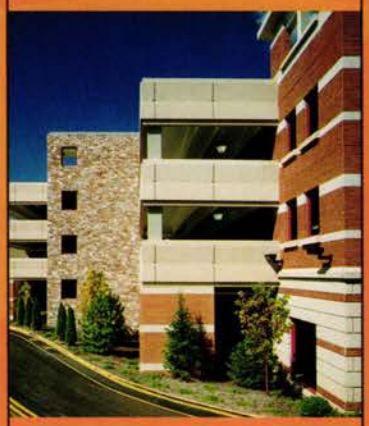

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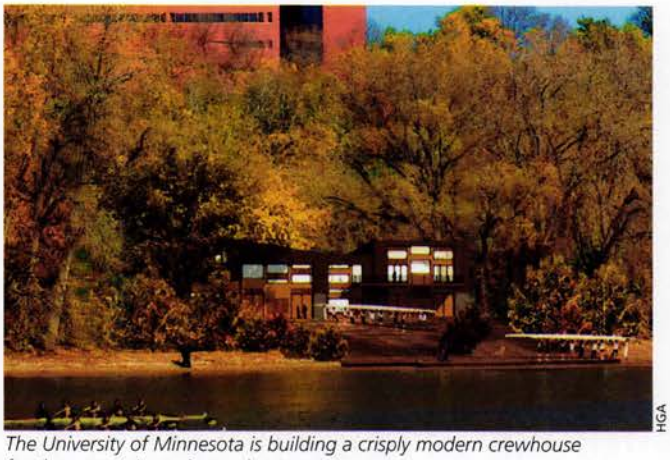
A Trio of U Projects

BY BETTE HAMMEL

For years, the University of Minnesota's nationally ranked women's varsity rowing team has been housed in a tattered tent near the power plant below St. Anthony Falls. But now a **modern crewhouse** is planned for them. Thanks to a major collaboration involving the Minneapolis Park Board, the City of Minneapolis, the Army Corps of Engineers, and the design/build team of Hammel, Green and Abrahamson (HGA) and Mortenson Construction, a sparkling new facility is under construction and will open next spring.

The site is a natural. Located below Coffman Union on the East River Flats, the new crewhouse will rise on the apron of city park land where the Centennial Showboat was once moored. HGA principal architect **Loren Ahles, FAIA,** describes the two-story, wood-clad structure as modest and low-tech but modern in design, with four shed roofs and windows all around. Inside are women's locker rooms, an exercise space, and an indoor rowing tank. The men's rowing club will share training space and have its own locker room. The boats are housed in the ground level for ease of transport to the river. ❖



HGA

The University of Minnesota is building a crisply modern crewhouse for the women's varsity rowing team.

Rafferty Rafferty Tollefson Architects (RRT), St. Paul, in collaboration with Oklahoma-based gh2 Gralla Architects, will design a new **Equine Center** for the University of Minnesota. A professional building in keeping with other newer facilities on the university's St. Paul campus, the 50,000-square-foot Equine Center will include an indoor arena with natural light, stalls designed specifically for horses, and a veterinary clinic with a surgical suite, and will house some equipment from the school's existing Large Animal Hospital, says RRT project manager **Chip Lindeke, AIA**. The clinic will focus on the medical problem of lameness, treating a research herd of lame horses using, among other tools, a large treadmill. The public will be able to bring in lame horses for evaluation. In addition to serving as a laboratory for veterinary students, the Equine Center will offer continuing-education programs in the animal sciences. A unique new program called We Can Ride is planned for children with disabilities. The architectural team is now at work on schematic designs. ❖

Perched on a bluff on the east bank of the Mississippi River, the University of Minnesota's Mineral Resources Research Center (MRRC), designed by Clarence H. Johnston, was well equipped for its purpose with labs, industrial skylights, a large overhead traveling crane, and other heavy mining machinery. It was here that university researchers developed the taconite refining process that flourished for years on Minnesota's Iron Range. In 2004, the University of Minnesota commissioned Collaborative Design Group (CDG), Minneapolis, to restore the 1924 building's historic façade and renovate the industrial interior to include offices, research labs, and meeting rooms. CDG, mindful of the structure's historical significance as part of the Knoll District, is striving to retain the building's original character, even while constructing a new building inside the old one, say CDG principals **Michael Jordan, AIA,** and **Lee Seppings**. The exterior red brick will be repaired, new windows and skylights added, and new mechanical, electrical, plumbing, and fire-protection systems installed. MRRC will now be known as the **Education Sciences Building**. The 2005 legislature allocated $14 million for rehabilitating the 62,000-square-foot landmark. ❖

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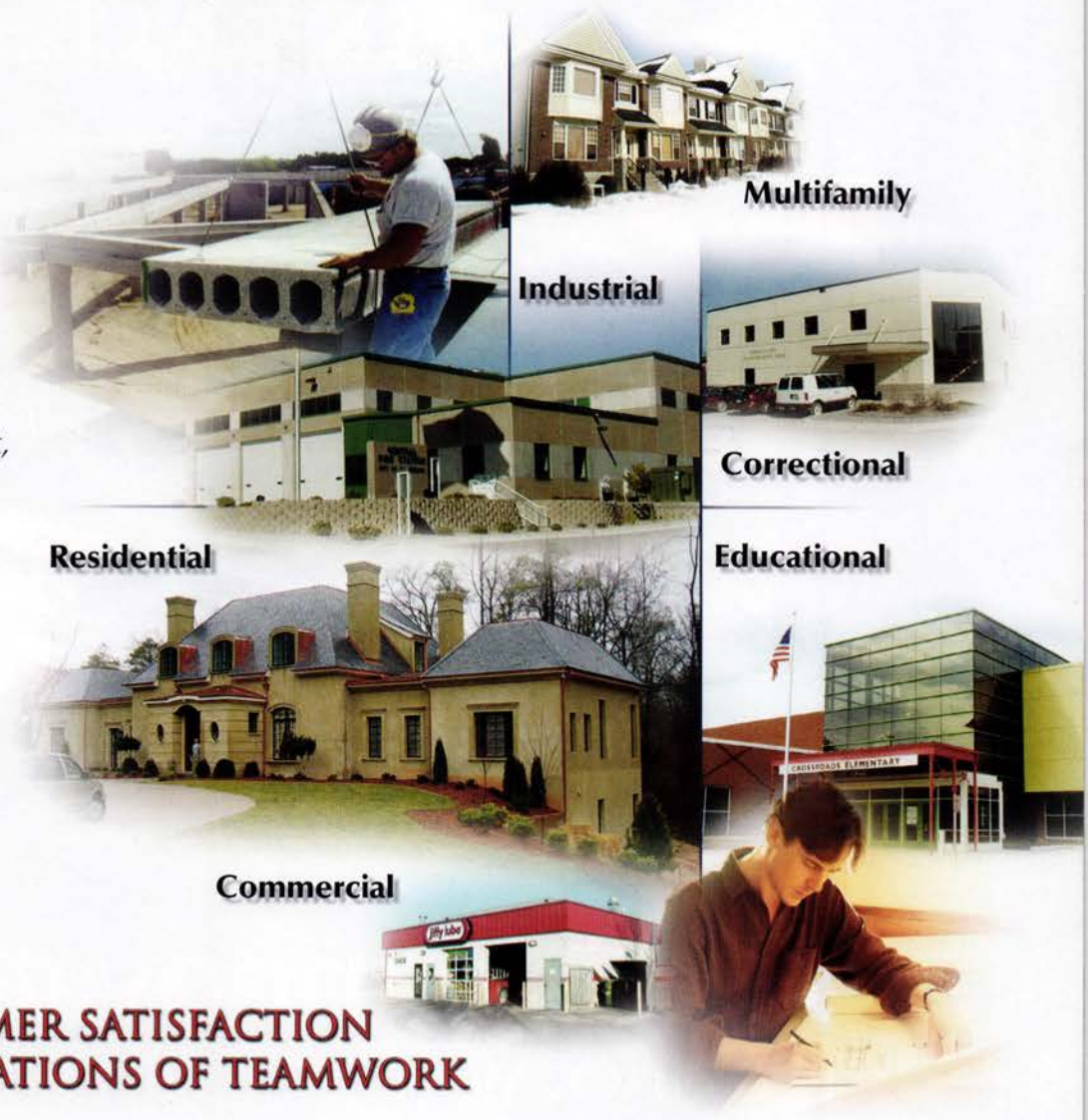

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Teaching Outside the Box

A powerful movement to bring design education to children and teens finds fertile ground in Minnesota

BY PHILLIP GLENN KOSKI, AIA

JUDI PETKAU

A popular five-day summer workshop at the Weisman Art Museum puts high school students on the road to becoming an architect. Instructor Josh Weinstein (left photo) founded the Architectural Youth Program, upon which the Weisman architecture camp is partially based.

Recently, over a friendly lunch, a fellow building professional—a general contractor, as it happens—informed me that a potential client was deciding between hiring an architect and paying a "plan designer" much less to prepare some drawings for a city submittal. "What on earth is a plan designer?" I wondered out loud to my friend. She explained that a plan designer is a person who draws things on paper to scale.

Indignant, I ventured more questions. Did the client think the person drawing scaled objects on paper was also going to ensure that the project met safety-code requirements and federal accessibility laws? Evaluate the need for a new sprinkler system or elevator with code officials? Calculate city-mandated parking requirements for the new use, identify cost-effective and durable materials, and prepare perspective renderings to explain to the client how cool and hip and aesthetically coherent the new space could be? My colleague laughed with me, and at my tirade, as I considered silently how my firm's chances were of getting the job.

For the architectural profession, the unfortunate reality is that most people aren't aware of the broad range of valuable services architects provide, or how the buildings they live and work in affect their daily lives and could be made better. And why should they be? The practice of architecture is historically a gentlemen's profession serving other gentlemen. We are still crawling out of that history.

If architecture is today less of an elite activity, it still has yet to reach the mainstream. While attorneys and doctors benefit from popular television dramas like *Law and Order* and *ER* that familiarize the public with their professions, architecture lacks such a universally equalizing force. Privately, architects lament the frequent need to educate their clients at the start of each project.

While the profession asks *how* we should educate the public, five years ago Mary deLaittre, director of the Environmental Literacy Project, instead asked *at what age* that education should begin. As an adjunct faculty member at the University of Minnesota's College of Architecture and Landscape Architecture (CALA) in the mid-1990s, deLaittre noticed that a majority of her entry-level design students lacked even the most fundamental vocabulary to discuss urban and architectural design. She spent much of her time bringing students up to speed on rudimentary principles of urban form; delving into more complex urban design issues had to wait.

Being able to identify and parse out orienting landmarks, view sheds, urban "edges," and circulation routes is a critical precursor to sophisticated thinking about urban design, just as knowledge of basic anatomy is a prerequisite for medical students learning how to diagnose an illness. Consider that most American high school students benefit from introductory courses in anatomy,

Continued on page 66

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13"—Ledge	16" x 48"	5.33
13"—Taper Top	16" x 48"	5.33
15"—Straight	16" x 48"	5.33
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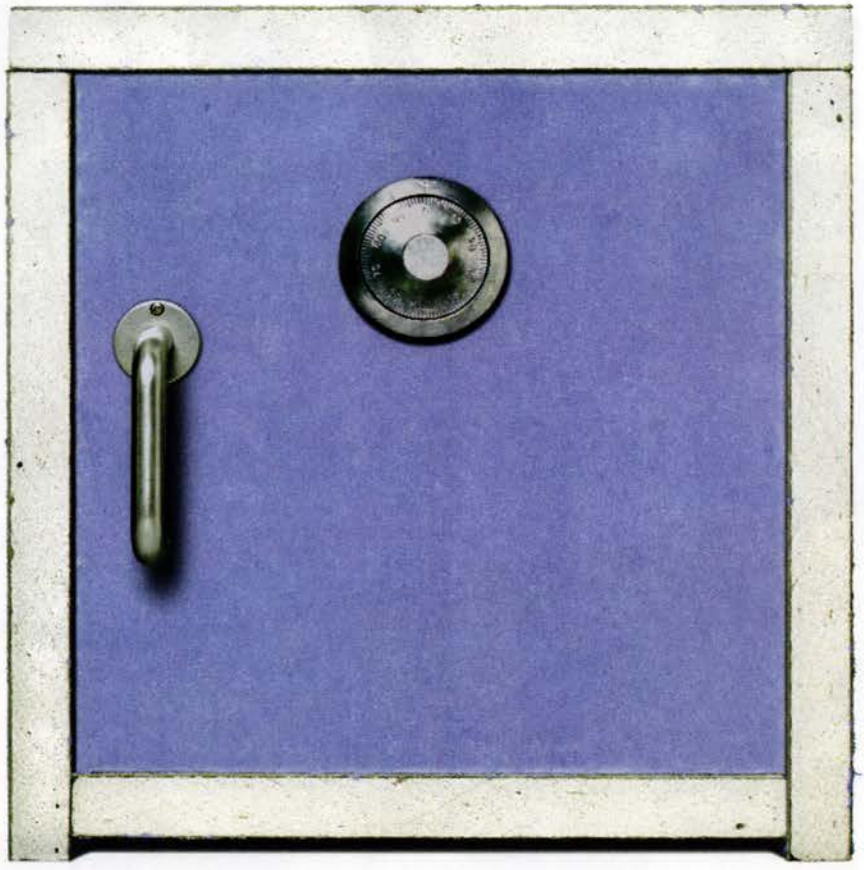

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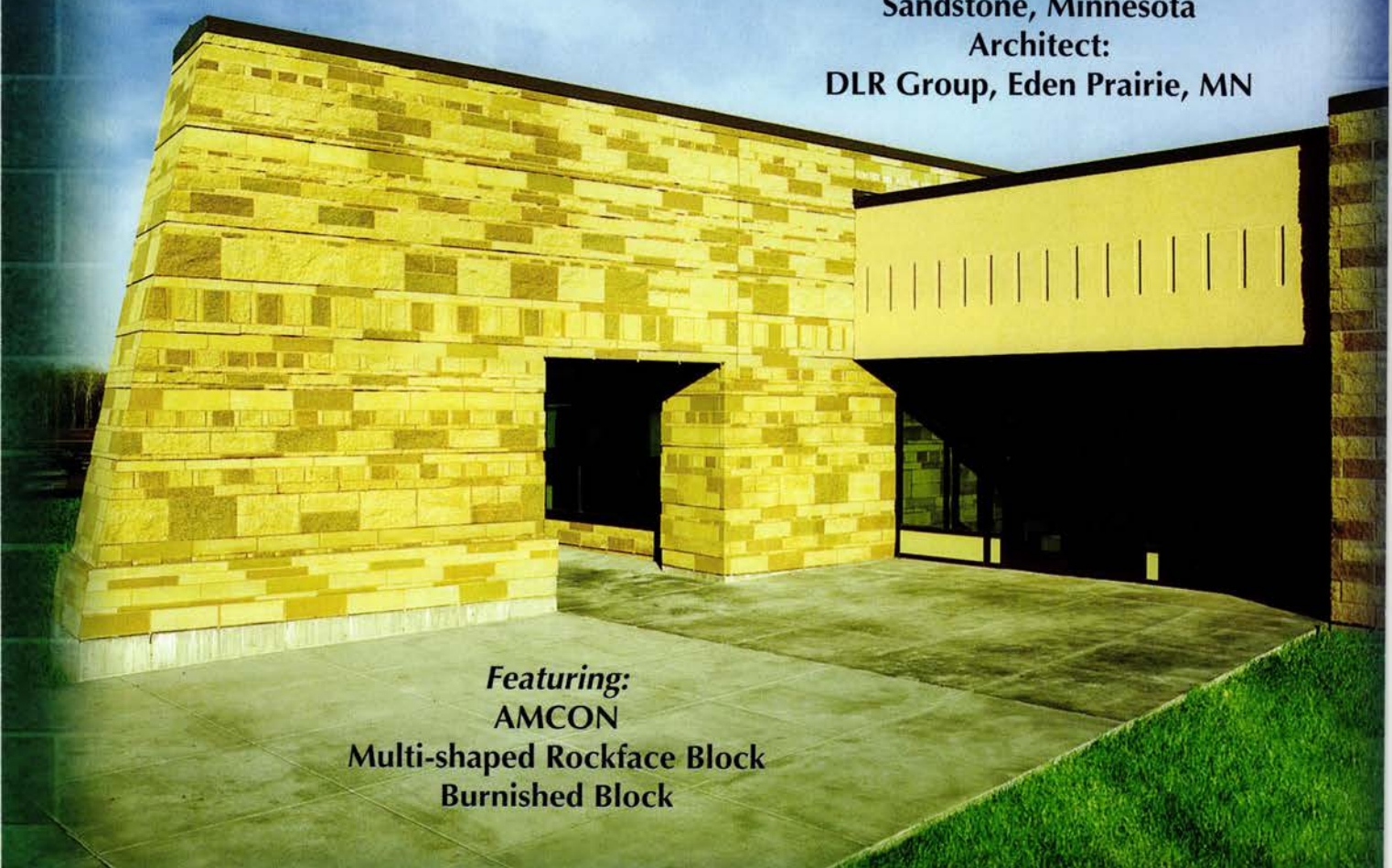

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Morris Area Elementary School

Morris, Minnesota

BY ROBERT ROSCOE

In November, the community of Morris, Minnesota, will experience an athletic version of Peter Bogdanovich's 1971 movie *The Last Picture Show*, when the Morris High School football team plays its last game at a 1930s-era football field. The aging athletic field has a pleasing architectural presence, thanks to architect Frank Jackson's expert arrangement of spectator seating and related functions on a sprawling hillside. At the crest of the hill, Morris Area Elementary School—the old Morris High School—overlooks the city on one side and the football field on the other. This interesting collection of buildings, whose construction dates and styles chart the history of the city, will also soon be vacated. The school district will be opening a new elementary school and a new football field next fall. At this time, the fate of the old high school is uncertain.

THOMAS ZAHN

The old Morris High School includes a 1914 Arts and Crafts–style structure (left) and an Art Deco auditorium (right) added 20 years later.

The history of the complex dates back to 1914, with the construction of a two-story Arts and Crafts–style high school designed by Alban and Rolockhart Architects of St. Paul. The school added an Art Deco auditorium designed by Twin Cities architects Fund and Dunham in 1934, an early-Modern classroom building designed by Pass and Rocke Architects of Mankato in 1949, another classroom building in 1956, and a library in 1975. In all, the complex has seven different levels of floors, a structural anomaly that vexes school administrators because some students treat the building like a series of hardened trampolines, jumping from one level to another.

In 2001, the State Historic Preservation Office of the Minnesota Historical Society (MHS) determined that the original school building and the auditorium were eligible for inclusion on the National Register of Historic Places, citing their architectural significance and educational contribution to the city. That same year, MHS sponsored a reuse study. The assembled team of architects, economic-development planners, and city officials identified several alternative uses for the historic portions of the complex, including housing for the adjacent University of Minnesota–Morris campus, artists' residences, and a community-events center (the auditorium). It has also been suggested that the 1949 building with its cafeteria could be converted to senior housing.

Susan Granger, head of Gemini Research, a historic-preservation consulting firm based in Morris, has a keen appreciation for the buildings from a design standpoint—their scales in relationship to one another, the chronology of architectural styles—but her attachment to the school runs much deeper than that. She was born and raised in Morris, attended the school, and, after a professional sojourn in the Twin Cities, returned to Morris to live and work. For Granger, the buildings evoke school life, yes, but also the warmth and clamor of small-town community gatherings. She also sees in the school a record of the city's growth. The post–World War II structures, for example, mark the consolidation of a network of one-room schoolhouses into a city school offering resource-based education.

Morris Area Elementary School, like so many threatened historic buildings, must find an economically viable reuse.

Continued on page 78

When You're Looking for Great Details, Think of Us First.

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Brain Building

BY BILL BEYER, FAIA

Architects spend many of their waking moments absorbing and evaluating the built environment, and somehow they know immediately what works and what doesn't. They're often not aware of why a space makes them feel one way or another, but they trust their refined, sense-of-place brain receptors, developed over years of experience. Quantitative reasons elude them, so they chalk it up to intuition.

The human brain is an incredibly complex engine composed of more than 100 billion cells; the cortex alone contains 10 billion neurons, nearly half of which are dedicated to processing vision. As Donald D. Hoffman illustrates in his book *Visual Intelligence* (1998), we "build" our visual universe according to rules that are hardwired into our human brains in much the same way as is our capacity for language. Notes Hoffman: "Vision is not merely a matter of passive perception, it is an intelligent process of active construction." The image received at the eye is two-dimensional; our brains construct the third from an almost infinite series of choices.

A recent article in the *New York Times* described people who have experienced musical hallucinations. They can hear full orchestras performing specific music, but without an actual musical source. Studies by neuroscientists have shown that these hallucinations don't activate the auditory cortex, the normal first stop for sounds in the brain. Instead, mirroring the process of vision, the hallucinations engage those brain cells that build simple sounds into complex music.

The Academy of Neuroscience for Architecture (ANFA) was initiated in response to a suggestion from Dr. Jonas Salk, developer of the polio vaccine, who thought architects should have a better understanding of how the human brain interprets architectural settings. John Eberhard, FAIA, founding president of ANFA, received the first Latrobe fellowship from the AIA College of Fellows to advance that understanding. His resulting "White Paper for the Profession of Architecture," available online at www.anfarch.org, should be required reading for every architect.

Outlining the basics of neuroscience, Eberhard notes that humans have an innate spatial recognition ability in addition to our normal five senses. This sixth sense, called proprioception (from the Latin *proprius*, meaning "one's own"), allows us to locate ourselves in space. Eberhard describes research conducted at the University of Pennsylvania to test the hypothesis that the brain has a special zone for perceiving buildings. That study used functional MRI to isolate a specific region of the visual cortex that appears to be used for orientation within the built and natural environment. People with brain lesions in this region lose their ability to use buildings as wayfinding cues in urban areas.

ANFA continues to promote interdisciplinary doctoral programs, building new alliances to direct research toward topics with significant impacts on architectural practice. We already know that noisy and poorly lit environments in neonatal-care facilities have direct negative effects on brain development in infants. New research topics may include how school settings influence learning, why some hardwired memories remain accessible to Alzheimer's patients, or what elements influence our sense of sacred space.

Empirical study and intuition have allowed us to determine many of the "whats" of the brain; we now aim to get wise to the "whys." Will advanced scientific analysis rebuild our understanding of human perception in ways that will help us make better design decisions? And if the human brain and its processes are ultimately quantifiable, will we have lost our sense of wonder?

The answer to the second question is, probably not. In *Visual Intelligence,* Hoffman quotes Ralph W. Stockman, the famous mid-century NBC radio preacher, reflecting on our escalating quests for knowledge and understanding: "The larger the island of knowledge, the longer the shoreland of wonder." ❖

> "If the human brain were simple enough for us to understand, we would be too simple to understand it."
>
> — *Listening to Prozac* (1993)

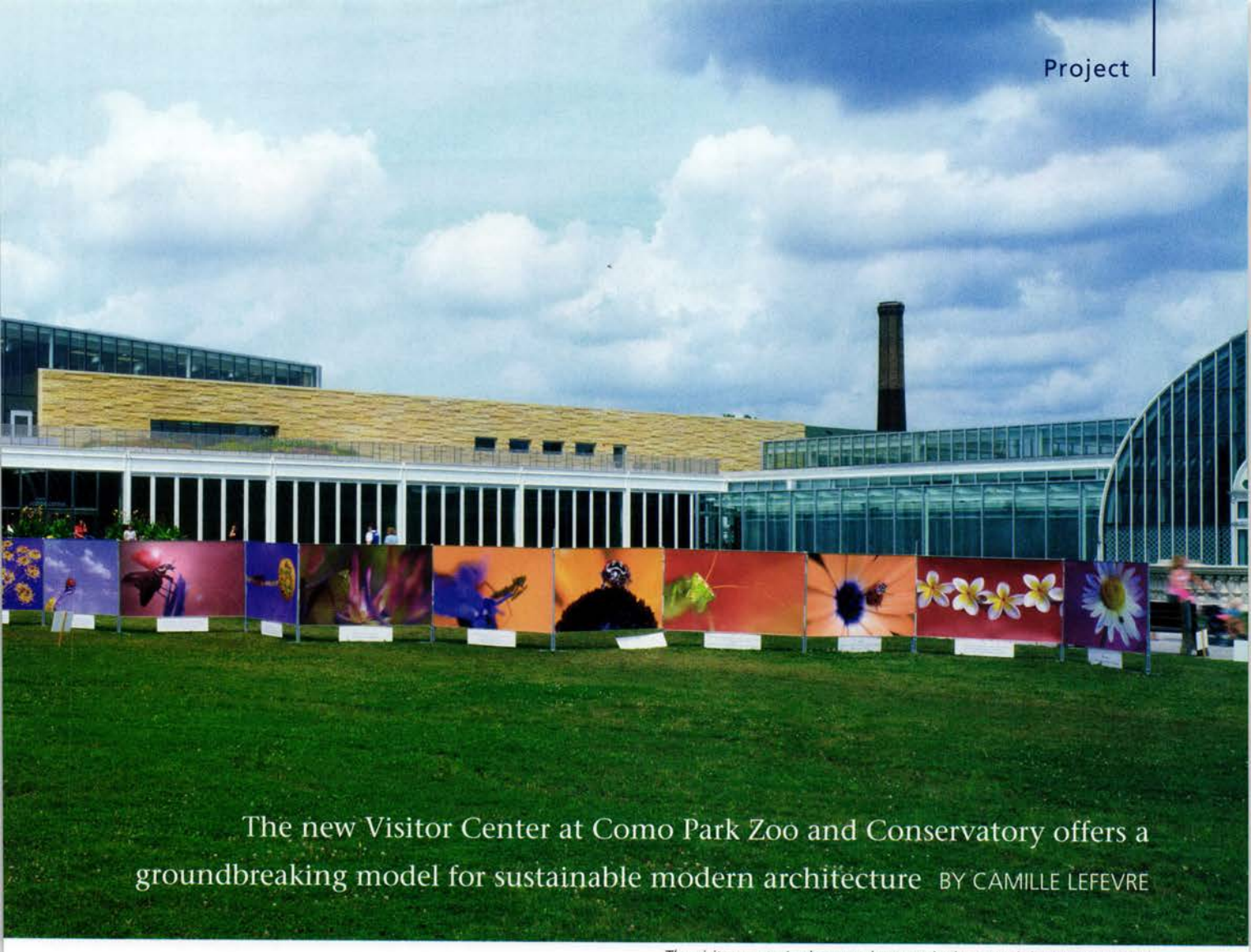
Greenhouse Effect

PETER BASTIANELLI-KERZE

For 90 years, the Como Zoo and its adjacent botanical conservatory, located in St. Paul's Como Park, educated and entertained visitors of all ages about the world's flora and fauna. Ultimately, however, the park's mission was thwarted by the lack of an education building that would unify the campus while providing space for classrooms, community meetings, and visitor amenities. "We weren't maximizing the public's visits, or the educational opportunities offered by the plants and animals we care for here," says Roberta Sladky, manager, Marjorie McNeely Conservatory. "Plus, there wasn't a clear connection between the zoo and the conservatory. We wanted a physical realization of our mission."

Since the completion of the Visitor Center at Como Park Zoo and Conservatory, designed by Hammel, Green and Abrahamson (HGA), Minneapolis, "we've had a constant stream of visitors," Sladky says. "For so many years, we've known that people considered the zoo and conservatory as one destination. The new building makes that a reality, by making visible the operations we've had in place for years."

The new front door for the city's beloved zoo, the 73,000-square-foot structure features a phototropic dome with a tropical plant and animal exhibit, "tree house" classrooms for schoolchildren, rooftop gardens, a gift shop, a café, and meeting rooms. The building also connects the zoo—via an indoor/outdoor "front porch," with operable floor-to-ceiling glass doors that pivot dramatically out over reflecting ponds—to a new bonsai room and fern and orchid exhibits behind the iconic, Victorian-era conservatory.



The new Visitor Center at Como Park Zoo and Conservatory offers a groundbreaking model for sustainable modern architecture

BY CAMILLE LEFEVRE

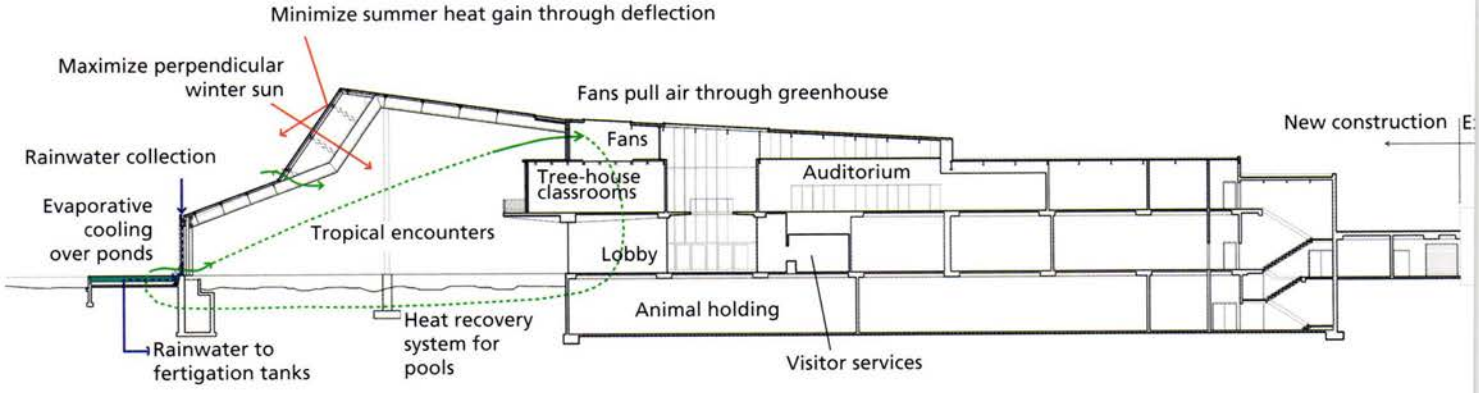
The visitor center's abstract phototropic dome and the conservatory's historic glass dome anchor the complex at either end.

In response to Sladky's concern that the new structure not diminish the conservatory, which is on the National Register of Historic Places, HGA conceived a modern design that borrows from the historic campus' materials palette of glass and steel (conservatory) and Kasota stone (zoo building). In a bolder move, HGA anchored the visitor center's west end with the abstract glass-and-steel phototropic dome.

With the aid of computer modeling, the project team calibrated the angles of the dome to maximize winter light and minimize summer sun. As a result, says project designer Kara Hill, AIA, the domed structure has "phototropic qualities, meaning its strong steel ribs resemble branches and the veining of a leaf, while its shape 'pulls up' toward the sun and shifts gently in a semicircle northeast toward the zoo." Sladky says the visitor center and conservatory domes complement each other: "As you move from the historic building to the addition, you sense the difference—that each structure is of its own time. The contrast between the historic dome and the angular structure is just what we wanted: striking and respectful."

Shallow ponds hug the new building from dome to dome, reinforcing a connection between new and old. The reflecting pools are also part of a passive cooling system similar to those that were used to moderate temperatures in greenhouses during the Victorian era. As the pond water evaporates, cool and moist air is pulled into the building through operable windows below the glass walls. The building's heat-recovery system warms the pond water, provid-

PETER BASTIANELLI-KERZE



Reflecting pools lining the exterior from dome to dome are part of a passive cooling system similar to those used in the Victorian era to moderate greenhouse temperatures.

ing a temperate environment for the Victoria water platters (giant Amazonian water lily pads).

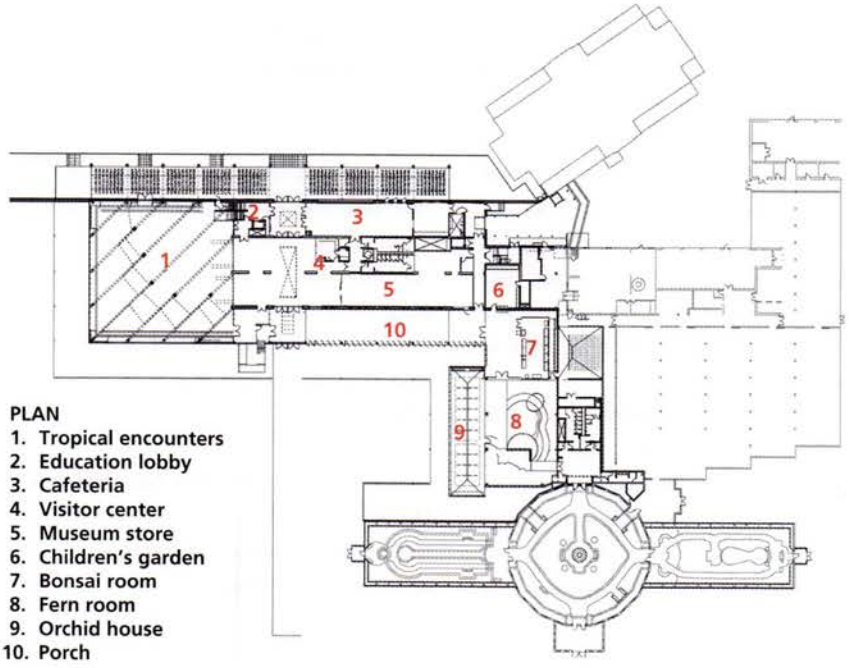
This sustainable design strategy is just one of many that HGA integrated throughout the building. The phototropic dome's network of steel ribs and gutters channels and collects rainwater, which the park uses for irrigation. Inside the building, walls are covered with renewable cork and medium-density fiberboard as well as Forest Stewardship Council–certified maple. Ceilings are uncovered. Counters are Shetka Stone, a local product made of resin and recycled paper and fabric. The concrete floors contain fly ash.

On the second floor, ipe (pronounced EE-pay), a durable and renewable wood, was used for the sliding sunscreens over the windows of the tree-house classrooms (whose balconies cantilever into the dome's rainforest canopy) and for the plank flooring for the deck (where raised beds demonstrate roof-garden options); the trellis on the north side of the building and the benches throughout the bonsai room and greenhouses are also made of ipe. Visitors can reach the greenhouses via the visitor center's front-porch corridor, which, in addition to pivoting glass walls, features a mortar-less rain-screen wall of stacked Kasota limestone with flaws and fossils intact (this in contrast to the many projects that require flawless stone of uniform color, with the rejected material relegated to a landfill).

New ADA-compliant exhibition spaces occupy what was formerly a small, dark hallway behind the conservatory. The bonsai room's framework of rough steel beams and sandblast-

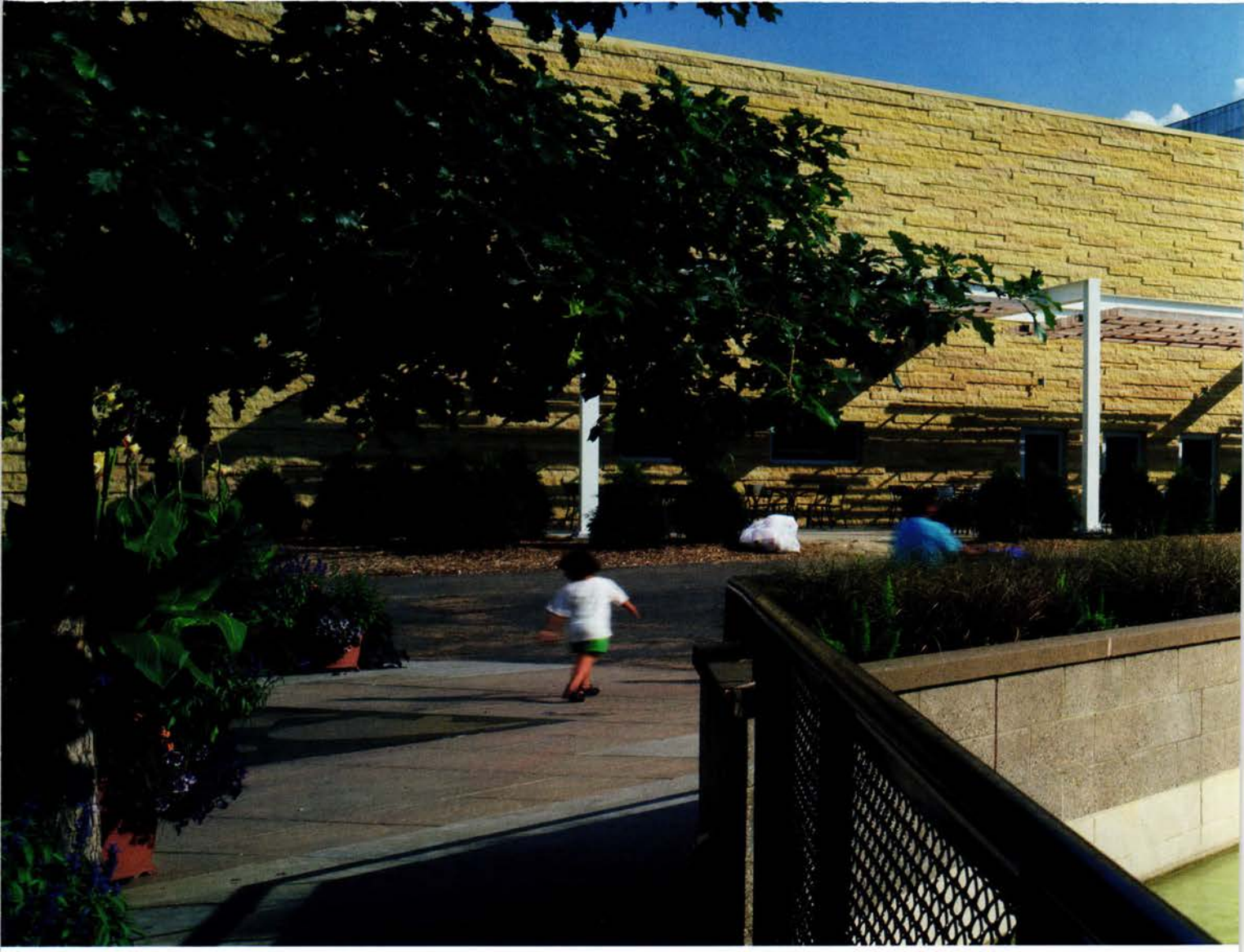
PETER BASTIANELLI-KERZE

Opposite: "Tree house" classrooms for schoolchildren are accessed on the second floor of the visitor center's light-filled atrium. Above: In addition to generating electricity, the photovoltaic panels in the fern room's glass ceiling speckle the plants with needed shade.



PLAN

1. Tropical encounters
2. Education lobby
3. Cafeteria
4. Visitor center
5. Museum store
6. Children's garden
7. Bonsai room
8. Fern room
9. Orchid house
10. Porch



Above: The back of the visitor center opens out to the zoo. The Kasota-stone wall echoes existing zoo structures made of the same material. Bottom right: One of several rooftop gardens.

ed glass panels, which recall Japanese shoji screens, is pegged into place with stainless-steel rods. The greenhouse roofs step down from the fern exhibit to the cantilevered orchid house; the orchid house shades the fern room from the western sun. Photovoltaic cells in the fern room's glass ceiling (paid for by Xcel Energy as part of a demonstration project) generate the greenhouse's electricity while also offering the dappled shade that ferns receive in a natural forest environment.

As a result of HGA's commonsense approach to energy conservation—also realized through a reduction of the visitor center's footprint at the outset—the public building was constructed for approximately $225 per square foot and exceeds the city's energy-code requirements by more than 40 percent. "We're a conservation organization," Sladky says. "HGA's design fit right in with our mission."

The building also updates the zoo and conservatory for the 21st century with architecture that engages as it educates. "It's a tactile building that you can interact with," Hill says. "People—adults and children—are always dipping their hands into the reflecting pools, or running their fingers along the stone wall. It's important that the building isn't just an object sitting on a hill."

Visitor Center at Como Park Zoo and Conservatory
St. Paul, Minnesota
Hammel, Green and Abrahamson
Minneapolis, Minnesota

PETER BASTIANELLI-KERZE

PETER BASTIANELLI-KERZE

Inside Out

When architects Vincent James, FAIA, and Jennifer Yoos, AIA, speak about New Orleans, they use words like *primordial*, *pungent*, and *luxuriant*—words that evoke the mystery, sorrow, decadence, and often mutable features of a city that, as the aftermath of Hurricane Katrina so grossly reminded us, floats below sea level, surrounded by water.

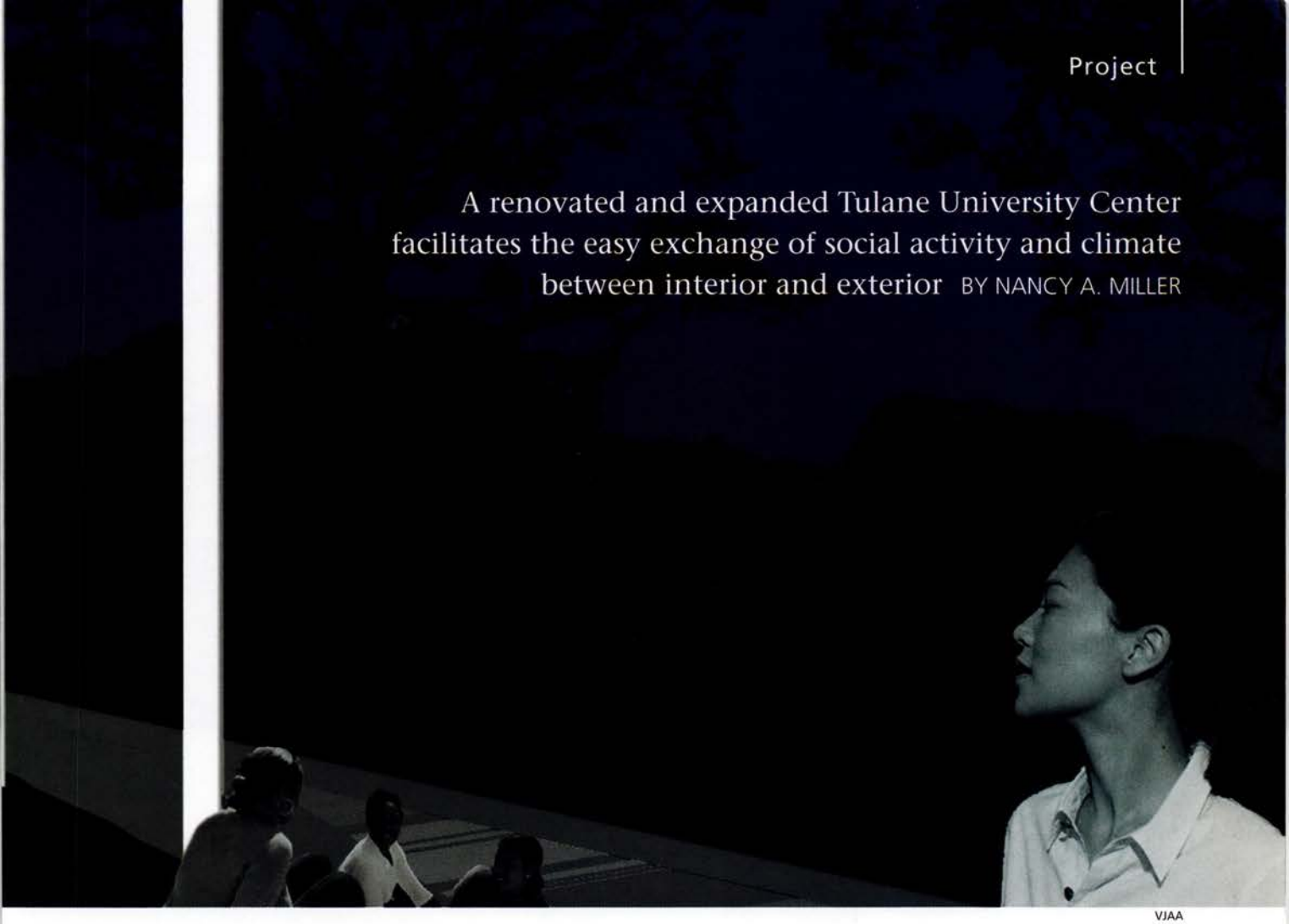
With its commission to renovate and expand Tulane University Center in New Orleans, VJAA (Vincent James Associates Architects) inherited a typical modern building, constructed in 1959, that was mechanically sealed and oriented inward. University Center's glazed curtain wall, though visually penetrable, defined interior and exterior spaces that were never allowed to mix. As a result, the social life of the building was not connected to the social life of the campus. University Center acknowledged neither its site nor its climate. James and Yoos, in close collaboration with managing principal Nathan Knutson, AIA, dramatically reversed that condition.

They stripped the 112,000-square-foot University Center down to its reinforced-concrete frame, added 34,000 square feet, and completely reprogrammed and reoriented the building. They created a structure that turns inside out and lets the outside in through a combination of passive and active building systems designed to facilitate the porous flow of social activity and climate. The new Tulane University Center has what James and Yoos describe as a "mediating, deep-façade condition" inspired by New Orleans' climate, culture, and history.

For centuries, the architecture of New Orleans, with its French, Spanish, and Caribbean influences, responded to climatic conditions with forms that encouraged an active physical and social relationship between interior and exterior.

A renovated and expanded Tulane University Center facilitates the easy exchange of social activity and climate between interior and exterior

BY NANCY A. MILLER



VJAA

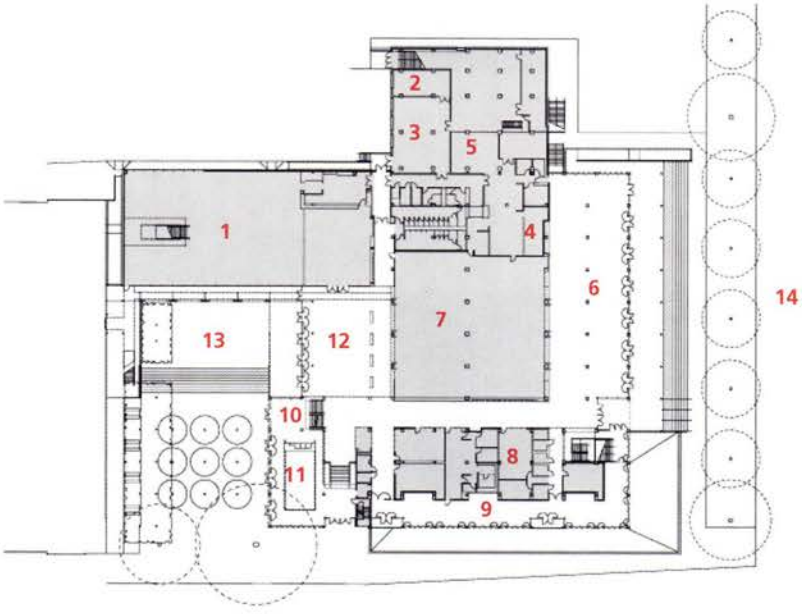
Buildings were designed and oriented to take advantage of cross-breezes for natural cooling; operable shutters blocked wind and hot sunlight; and, most famously, covered porches—locally referred to as galleries—mediated between cool and warm, house and street, private and public.

The new Tulane University Center, which houses a library, a bookstore, and a variety of social mixing areas, recalls historic New Orleans architecture without being mawkish. Traditional climate-mediating devices such as galleries, sun shades, and ceiling fans are translated into the taut modernism for which VJAA is well known. The result is a building that is both formally elegant and evocative.

University Center's layered, protective edges draw students into and out of the building and connect the building to its surroundings. For example, the glazed façade on the northeast side of the building opens up to allow the dining hall to

RICHARD SEXTON

Top: University Center's layered edges, created here by a broad, modern gallery, draw students into and out of the building. Bottom: The architects drew inspiration from traditional New Orleans galleries.



PLAN

1. **Bookstore**
2. **Mechanical and electrical room**
3. **Kitchen**
4. **Dishroom**
5. **Food preparation**
6. **Main dining hall**
7. **Food service**
8. **Commercial service**
9. **Study/computer lounge**
10. **Lounge**
11. **Coffee bar/deli**
12. **Commons**
13. **Courtyard**
14. **U.C. quad**

spill out onto a broad, modern gallery and merge with the busy campus quad. The southwest side of the building embraces a raised "pocket park" defined on two sides by the porous walls of University Center and on the other by a vine wall that shades and cools the space. As is typical of the building, the park is open yet protected. A wall-hugging second-story catwalk serves as a shallower, more intimate gallery.

VJAA reoriented University Center to take advantage of natural light while adding external and internal systems that temper solar gain. Strategically placed fixed-slat louvers on exterior walls shield interior spaces from direct light but yield ample ambient light. Ventilation supplied by operable vents and fans and three solar chimneys reduces the load on the HVAC system.

The building's nerve center is a finely tuned building-management system that monitors interior and exterior conditions and coordinates the operation of the building's natural and mechanical systems. When conditions permit, walls and windows will be opened and natural systems will allow interior and exterior climates to merge. When necessary, the building will be closed and rely more heavily on mechanical ventilation. Taken together, these design measures will increase energy savings by 30 to 50 percent.

VJAA

New Orleans' luxuriant landscape and traditional architectural forms inspired Vincent James and Jennifer Yoos to develop a more sustainable and locally relevant model of architecture, one that breaks down the sharp and functionally questionable division of interior and exterior that reshaped the city's architecture and urban design in the 20th century. The result, in Tulane University Center, is an energy-efficient, socially vibrant, and gracious building that could serve as an ideological model linking the past and the future of New Orleans.

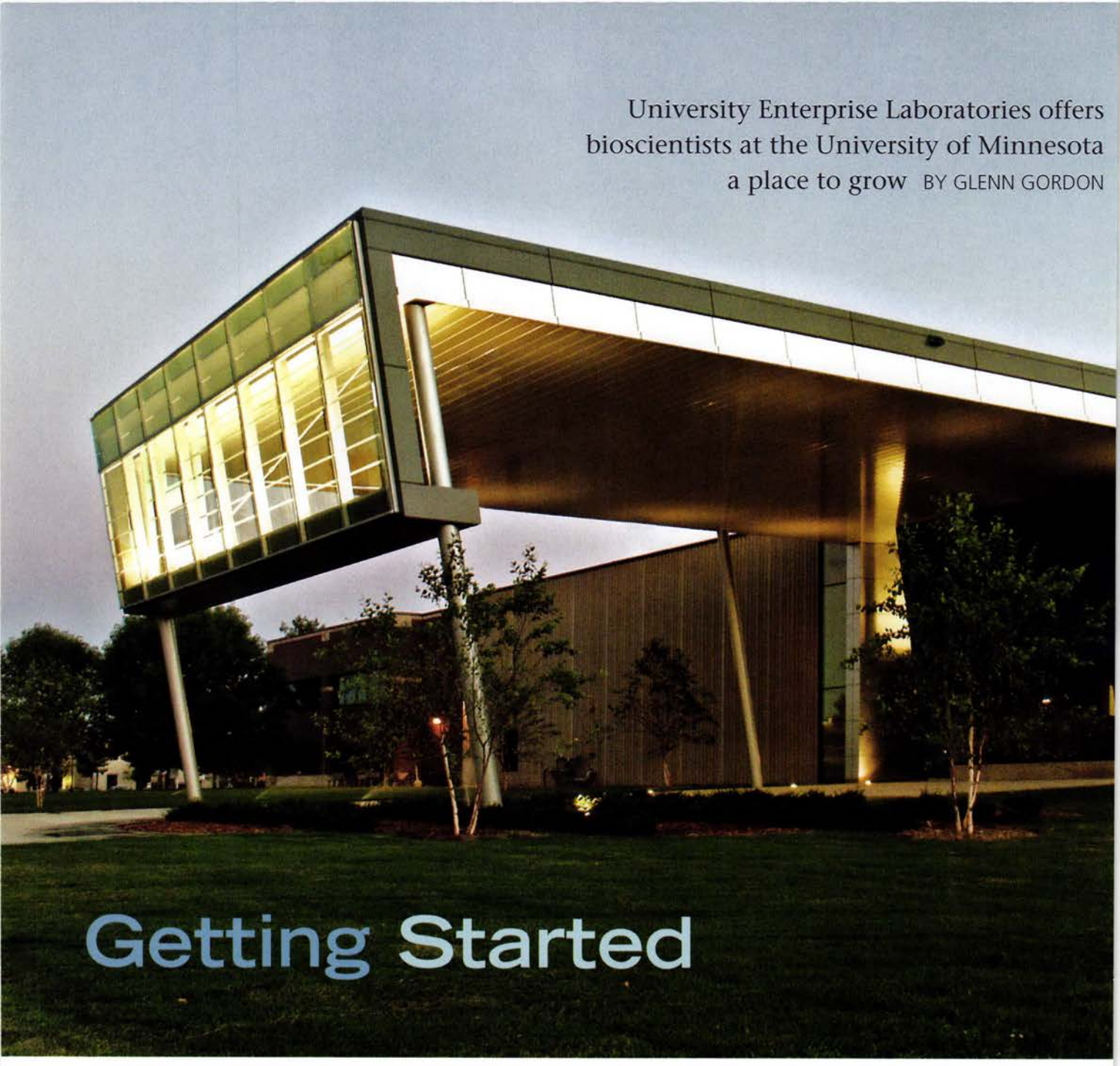
Tulane University Center
New Orleans, Louisiana
VJAA
Minneapolis, Minnesota

VJAA comment: We were warned by our friends in New Orleans that the city would seduce us—and it did. New Orleans is a true melting pot, and we learned a great deal from its culture and building traditions. The hurricane and its aftermath were heartbreaking; we can't imagine an America without New Orleans.

Our project was 68 percent complete at the time of the hurricane and survived fairly well. It now comes down to rebuilding the infrastructure in order to get back to work.

VJAA

Top: University Center offers a modern translation of traditional New Orleans architectural elements and forms. Bottom: A shallow second-story catwalk overlooks a raised "pocket park" on the southwest side of the building.



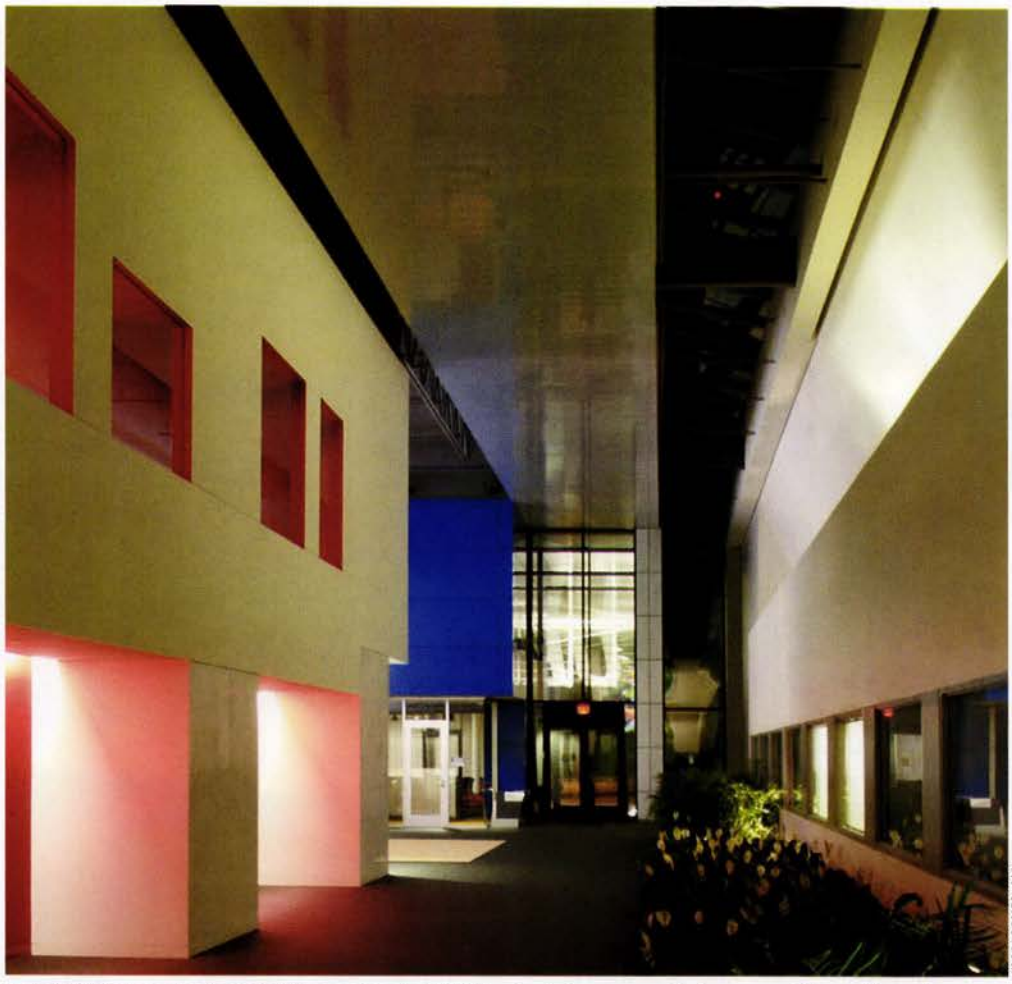
University Enterprise Laboratories offers bioscientists at the University of Minnesota a place to grow BY GLENN GORDON

Getting Started

Entrepreneurial start-ups are the natural offshoots of great research universities, with their pool of top-flight scientists and researchers. The business of developing practical applications from new thinking in the biosciences, however, poses a high level of risk, and the payoff is far from certain. Ideas need to be tested in laboratories, but building and equipping a laboratory can be prohibitively expensive. Meanwhile, the push for new technologies and applications only intensifies. Universities all around the world are jostling to attract scientific talent by offering facilities that make such research and development possible. A university that can't provide its scientists a place to grow will see its best minds depart for other institutions that can.

The University of Minnesota enjoys an abundance of scientific talent. So, how to induce this talent to stay and put down roots here? Several years ago, leaders from the uni-

JIM MORNES, AIA



JIM MORNES, AIA

Left: With its dynamically angled face and posts, UEL's illuminated canopy projects a sense of the cutting-edge research being conducted inside the building. Above: View from the rear of the bioscience garden to the entrance and the canopy beyond. On the right are horizontal windows into laboratories. On the left are conference rooms.

versity, the University of Minnesota Foundation, the City of St. Paul, and a number of Minnesota corporations determined that what was needed to keep the university and the region competitive was a nursery, a patch of protected fertile ground in which the university's scientific community could seed new enterprises without the heavy upfront expense of building labs from scratch.

And this is exactly what the university and its partners created, with help from Architectural Alliance: a bioscience incubator called University Enterprise Laboratories (UEL). Architectural Alliance principal Thomas DeAngelo, FAIA, describes UEL, which opened this past August in St. Paul, as "a kind of laboratory hotel" providing ready-made labs, flexible short-term leases, shared technical spaces and amenities, and—as has already happened—surprise synergies resulting from conversations over coffee in the building's common areas.

Having concluded that renovating an existing building would be more cost-effective than building from the ground up, UEL's board of directors, chaired by Dr. Robert Elde, dean of the university's College of Biological Sciences, settled on a tilt-up, precast-concrete warehouse strategically located along the transit-way linking the university's Minneapolis and St. Paul campuses. Architectural Alliance did the rest, transforming the drab 130,000-square-foot facility into a conservatory flooded with light.

UEL's angular, illuminated entrance canopy protrudes from the otherwise anonymous warehouse façade. The canopy is an assertion of UEL's identity, a projection of the kinds of activities that take place within. Inside the building, UEL's mission is beautifully corroborated by a skylit central corridor lined on both sides with a "bioscience garden" of bamboo palms, peace lilies, and liriope, a species of low ground cover. Also lining the long atrium are the windows of the

JIM MORNES, AIA

JIM MORNES, AIA

JIM MORNES, AIA

Far left: The view on entering the building and its newly planted garden. The translucent white cube, composed of inexpensive corrugated polystyrene, conceals mechanicals. The same material, screened with a colorful rendering of a molecular reaction, is used to shroud mechanicals at the far end of the atrium. Above: The daylit commons area, where scientists from different labs often gather for coffee, is proving to be a seedbed for new ideas and projects. The low windows in the conference room on the right offer visual access to the garden even when the room is darkened for presentations. Near left: A typical laboratory, equipped with shelving, cabinets, fume hood, and wet sink, ready for a researcher to move in. The windows look out onto the bioscience garden.

21 laboratories. Walking through this space is a little like touring an aquarium: Your eyes are drawn to the display of scientific activity in each "tank." Each 900-square-foot lab is equipped with a wet sink, fume hood, cabinets, and shelves, and receives a good deal of natural light from the central skylights.

Opening out onto the bioscience garden are several conference rooms and a presentation space marked by a continuous row of shallow, floor-level windows—an ingenious detail that makes it possible to view both a slide presentation and the garden's sun-washed greenery. Architectural Alliance's sensitive and sensible handling of this project presents a good, even poetic, argument for the adaptive reuse of even the most utilitarian buildings.

University Enterprise Laboratories
St. Paul, Minnesota
Architectural Alliance
Minneapolis, Minnesota

The City of Moorhead looks to the future with a modern middle school designed for transparency

BY BARBARA KNOX

A New Horizon

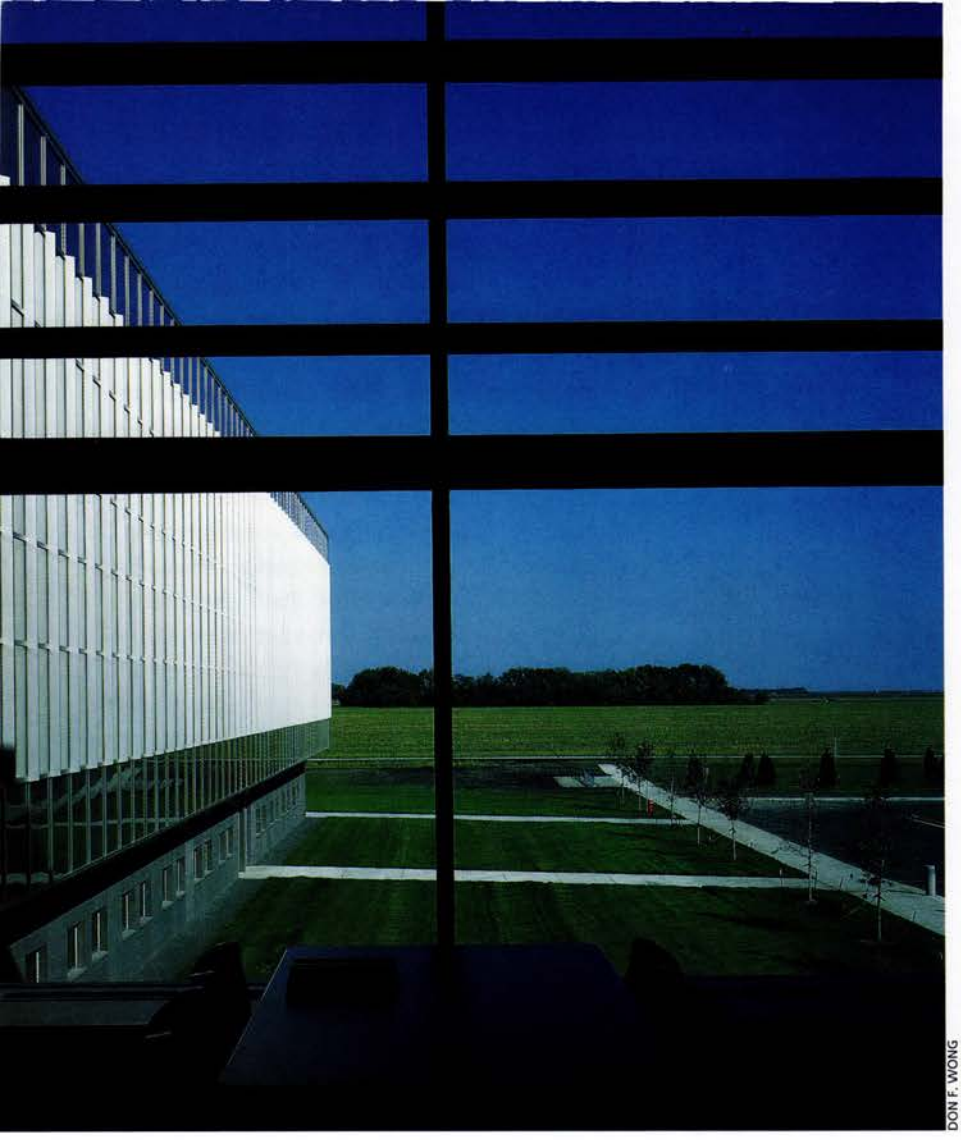
DON F. WONG

On a fertile, flat plain in northwestern Minnesota, the city of Moorhead stretches out between the Red River to the west and an endless landscape of farms to the east. Across the river, Fargo, North Dakota, at roughly three times the size, dominates the metropolitan area formed by these sister cities. But there's change afoot in Moorhead. This modest city of some 33,000 people is enjoying dynamic growth, thanks in part to the overhaul of the Moorhead public schools that began in 2001.

When the new school superintendent, Dr. Larry Nybladh, arrived in 2000, his first act was to implement a budget reduction that led to the laying off of 60 staff members. But Nybladh, a former North Dakota Superintendent of the Year, quickly informed the community that he had not come to Moorhead to manage a system in decline. "I knew we needed to shake up both the school district and the community," says Nybladh. "It was time for a new awakening."

Enter Rozeboom Miller Architects, a Minneapolis firm uniquely qualified to bring Nybladh's vision to life. Rozeboom Miller, whose portfolio is more than 70 percent school-related, worked with Fargo architects Zerr Berg and educational consultant Roger Worner to assess the district's facilities. In the process of reconfiguring the existing 11 schools into a tighter, more efficient group of seven—an effort led by Ted Rozeboom, AIA—the Rozeboom Miller team designed a new building that would become the district's crown jewel: Horizon Middle School.

Situated on the eastern edge of Moorhead, overlooking vast stretches of farmland, Horizon posed some unique design challenges from the start. Completely exposed to the elements—fierce winds and sub-zero temperatures in winter, blazing hot sun in summer—the site was a dead flat, 64-acre parcel of land unrelieved by water or shade. "The initial sur-



DON F. WONG

vey of the site indicated less than one foot of grade change," says senior project designer Victor Pechaty, AIA. "So the question became, 'How do you make a place for education on this infinitely flat horizon?'"

The answer came in a Z-shaped form that allowed Pechaty to create a three-level classroom wing, a physical education and cafetorium wing, and a two-level administration/special-education zone that links the two, all while addressing the unforgiving site. "The Z shape provides views from one part of the building into another," says Pechaty, who admits to a partiality for "buildings that look back on themselves."

To delineate the distinctive form, the design team chose a palette of corrugated metal, glass, brick, and dark gray, precast concrete. The gymnasium's corrugated-metal siding, commonly used on silos, grain elevators, and farm buildings, is a nod to the city's agrarian roots. The extensive use of glass curtain wall

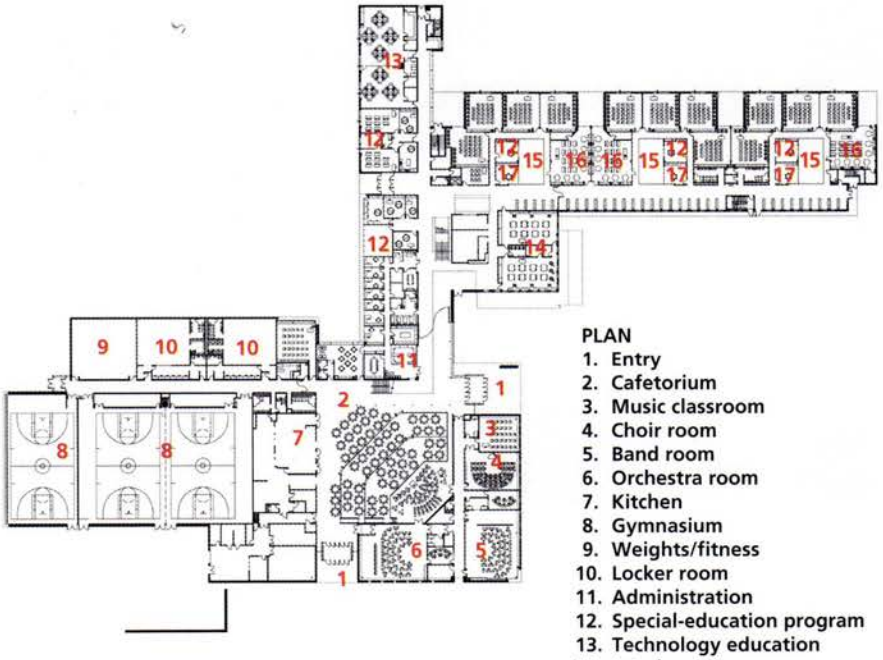
DON F. WONG

DON F. WONG

Previous spread: Horizon's media center, housed in an elegant glass box, hovers over the school's entry courtyard. Beneath the media center, art studios open onto an arts garden. Top left: Views from inside the media center frame the three-story classroom wing and the southeast-facing entry courtyard. Bottom left: The architects used glass curtain wall on the south face of the classroom wing to take advantage of solar heat gain in winter months and because studies have shown that student performance improves in daylit spaces. Above: The two-story entry area includes a "cafetorium"—a combination cafeteria and auditorium—as well as informal gathering space for students.

DON F. WONG

Each classroom along the north side of the classroom wing has a window opening 12 feet wide by 6 feet high.



PLAN

1. Entry
2. Cafetorium
3. Music classroom
4. Choir room
5. Band room
6. Orchestra room
7. Kitchen
8. Gymnasium
9. Weights/fitness
10. Locker room
11. Administration
12. Special-education program
13. Technology education
14. Art classroom
15. Team resource area
16. Science classroom
17. Teacher planning area

affords welcome sunlight in the cold winter months and, equally important, articulates Nybladh's mandate that the building and the education taking place within be transparent to the community. "We wanted everyone to be able to look inside and see what was happening in the building that their money paid for," says Pechaty.

Nowhere is that transparency more evident than at the southeast-facing entry court, which shelters arriving and departing students from bitter northwest winds and establishes a solar orientation for the building. In winter, the entry court's south-facing glass curtain wall transforms into a field of light during the early-morning and late-afternoon hours. To reduce solar gain in summer, the Rozeboom Miller team fitted the glass curtain wall with a series of vertical aluminum fins. The media center—a glass box cantilevered over a precast-concrete base—is shaded by horizontal mullions.

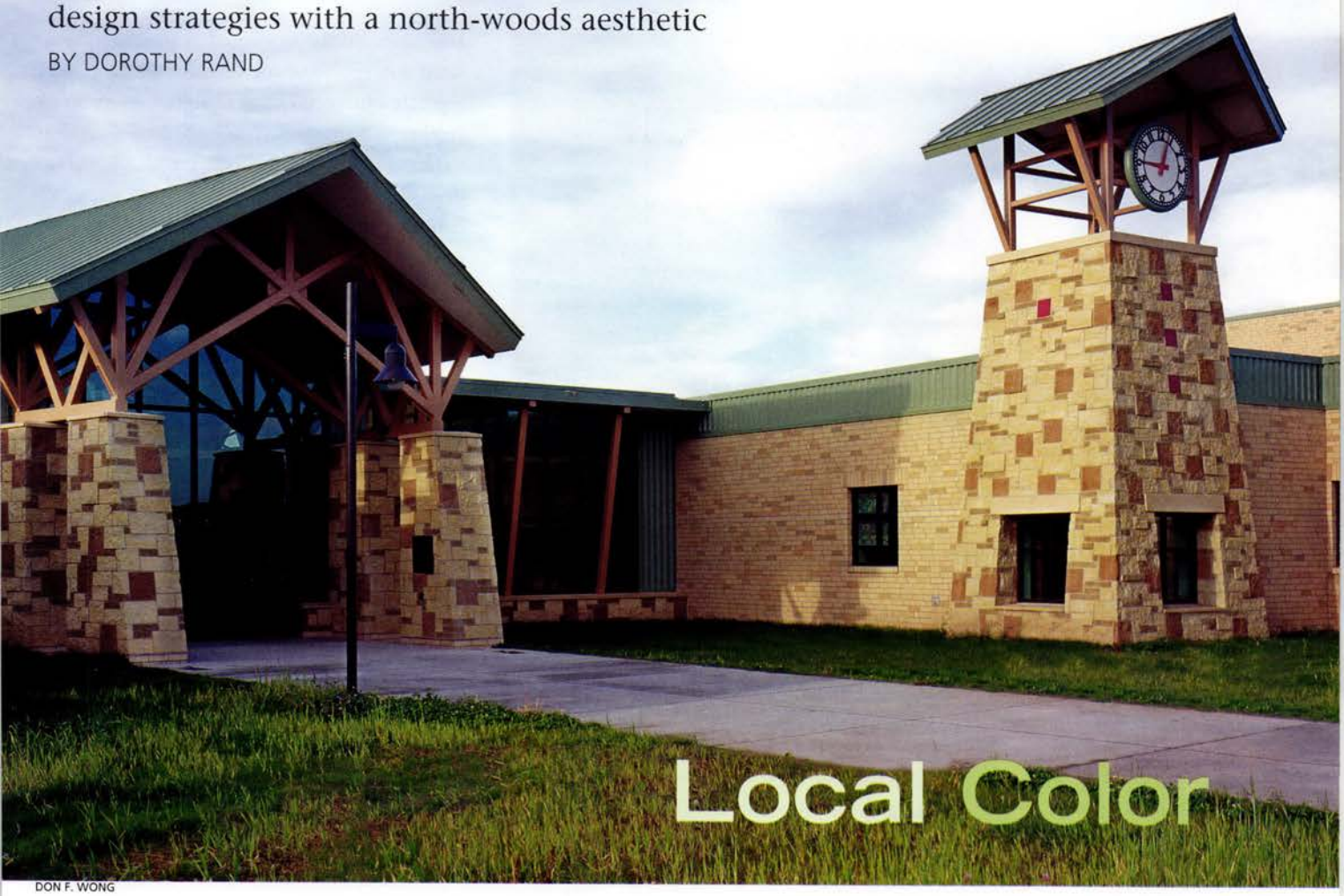
Learning by Design, a national publication that showcases excellent school design, recently named Horizon one of the two best new schools in the country, citing not only its elegant architecture but also the way in which the building plan facilitates the educational program. Locally, Horizon Middle School has been a catalyst for change and prosperity. For example, Horizon Shores, a new residential neighborhood that will feature a 16-acre man-made lake and some 1,200 new homes, is being developed on adjacent land. "There's been a 400-percent increase in the number of single-family homes built in Moorhead in the last year," reports Nybladh. "All the growth used to go to Fargo. Now, with its strategic location and its 'schools within a school' design, Horizon has put new heart and soul into our district and allowed us to grow our community."

Horizon Middle School
Moorhead, Minnesota
Rozeboom Miller Architects
Minneapolis, Minnesota

Local Color

Eagle View Elementary School combines eco-friendly design strategies with a north-woods aesthetic

BY DOROTHY RAND



DON F. WONG

Young Eagle View students won't be intimidated by their large school, because the entrance side of the building is only a single story high.

Faced with the need to build a new elementary school, the Pequot Lakes Area school board turned to DLR Group, an architecture firm with whom they had previously collaborated. Then-school superintendent Jim Oraskavich cites a simple reason for re-teaming with the Minneapolis firm: "The DLR folks are very good listeners."

Once the site was selected—the school board settled on an abandoned golf driving range that offered a southern slope, a view of Rice Lake, and a location halfway between Pequot Lakes and Breezy Point, the two main towns the school would serve—DLR met with school-board members, administrators, teachers, and other staff to develop a set of objectives for the new facility. High on everyone's priority list was flexible classroom space to accommodate changing teaching styles and year-to-year fluctuations in the number of students in each grade. The school board favored sustainable-design measures such as maximizing natural lighting, using renewable building materials, and installing energy-efficient mechanical systems. "School representatives also wished for a north-woods aesthetic," says DLR design principal Jon Crump, AIA, "but one that reflected the educational purpose of the building." In other words, they wanted the look and feel of northern Minnesota, but not a log cabin.

The resulting Eagle View Elementary School, which was given its name after children spotted eagles flying overhead at the groundbreaking, addresses all of these needs. DLR used the site's natural contour to great advantage. At the top of the slope, the north side of the school, where students enter, is an appropriately unimposing single story high. At the bottom, the south face rises to two full stories, providing opportunities for dramatic views and ample daylighting. All general classrooms enjoy a south-facing window, and students entering the soaring glass-walled cafeteria are greeted by a serene view of sky, hills, and lake. Just outside

DON F. WONG

Above: The two-story atrium cafeteria faces south for maximum natural lighting and a lake view. Opposite: The glass-walled media center also receives plenty of natural light.

the building, a natural amphitheater nestled in a hill has been terraced for student seating.

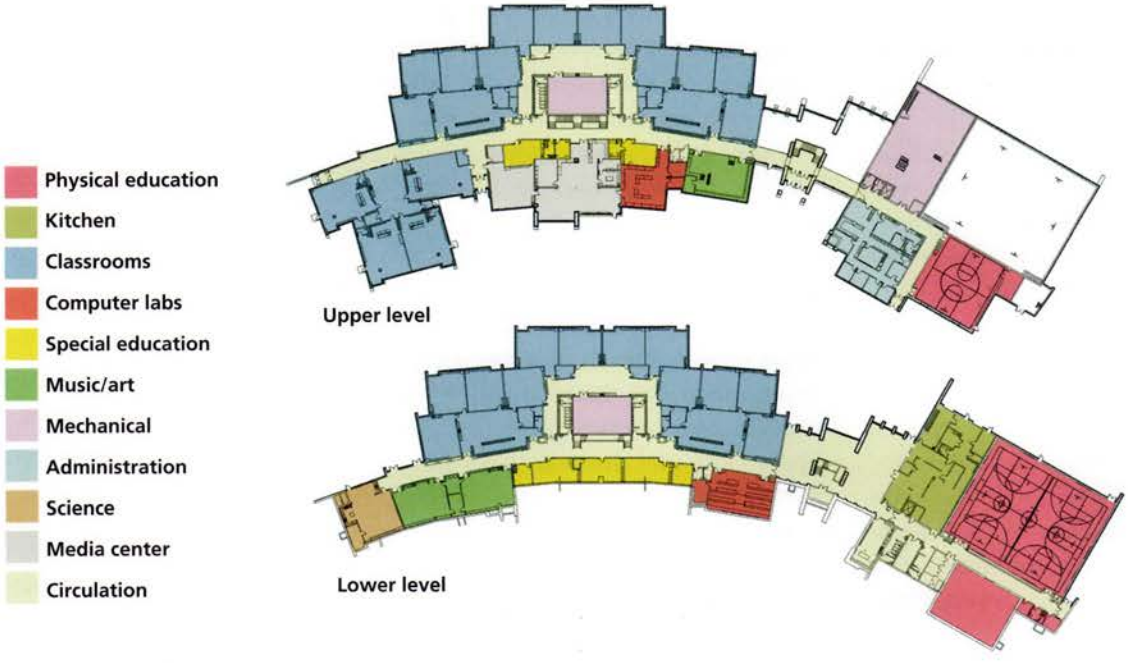
Classroom flexibility was achieved by arranging the rooms in six groups of five—one group for each grade level—and providing each cluster with its own "discovery area" complete with computers, science equipment, and small appliances. The six groups of classrooms are differentiated by color scheme, icon, and local lake name. In the kindergarten area, fixtures are sized and mounted for smaller children, and a separate entrance ensures "a gentle way to introduce youngsters to school," says Crump. "They don't have to interact with older children directly."

Eagle View also boasts a spacious media center, a two-station gymnasium with a full-size basketball court and bleachers, and dedicated classrooms for music and art. High above a skylit central stairwell, sunlight reflects off mirrored student artwork, creating a mural of light on the opposite wall.

The school's exterior evokes the natural character of northern Minnesota with dramatic trusses resting on ashlar masonry columns. The friendly clock tower flanking the main entrance offers a clever twist on the traditional tower with steeple roof. "To make this familiar school-related symbol less formal and fit with the north-woods design scheme, we put a simple shed roof over it," Crump explains.

In every detail, Eagle View Elementary is a school that represents and serves its community well. The DLR folks are very good listeners, indeed.

Eagle View Elementary School
Pequot Lakes, Minnesota
DLR Group
Minneapolis, Minnesota



DON F. WONG

Designing EcoHouse

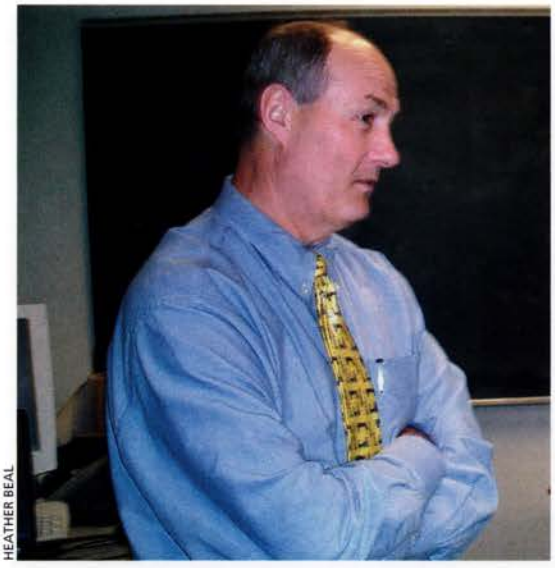
A cross-disciplinary design course at Carleton College examines global issues in a campus context

BY HEATHER BEAL

What happens when you gather college students from a broad array of academic disciplines; equip them with pencils, sketchpads, reference materials, computers, and a building laboratory; then ask them to design a beautiful, comfortable campus residence that "pushes the paradigm of eco-efficient living," all in 10 weeks?

Ask Richard Strong, facilities director at Carleton College in Northfield, Minnesota, and Gary Wagenbach, director of Carleton's Environmental Technology Studies program, who co-teach a cross-disciplinary class for liberal-arts students that fits this description. Titled "Design and Construction of EcoHouse," the course attempts to bring high-level, theoretical discussions on topics such as global warming and energy policy down to a personal level, where students can relate their individual life choices to broader environmental issues.

HEATHER BEAL



HEATHER BEAL

HEATHER BEAL

Above left: Instructors Richard Strong (shown) and Gary Wagenbach mix conventional classroom lectures with open and animated discussions to address issues that have "few prescribed solutions." Above right: Students use "overlaying" to combine their individual research results and narrow site options for EcoHouse. Opposite: Noted green architect William McDonough, FAIA, joined EcoHouse students for an informal discussion over breakfast in April 2004.

Carleton officials first considered constructing an ecologically efficient student residence in 2002 after the college received a capital donation for this purpose. A short time later, a group of students completed an independent-study project that examined sustainable campus living. "Their project raised new questions," Strong says. "Would college students want to live in an ecologically efficient house? What does *sustainable* mean? To find answers to these questions, we thought, 'Why not design this house ourselves?'"

After writing a preliminary course description, Strong invited other faculty members to consider collaborating with him. Wagenbach needed no cajoling. It made perfect sense for an architect (Strong) and a biologist (Wagenbach) to co-teach a course aimed at integrating the built and natural environments. However, as they soon learned, completing detailed plans for the EcoHouse class, which they envisioned teaching for up to five consecutive spring quarters, presented a number of challenges.

A Tin-Foil Blanket

"At first students resist the idea of sustainable living," Strong says. "Some think they'll have to live in a cave with a candle. Others think they'll have to shrink the size of their living space." Strong and Wagenbach address these concerns by encouraging students to first think about how much space, daylight, heating, cooling, power, and other amenities they would need to make a home comfortable; then they ask the students to focus on achieving these goals sustainably. "Beauty and abundance are found in nature," Strong assures them, "and thus are guiding principles for the design of EcoHouse."

Different teaching styles posed another challenge for the two instructors, who had never before collaborated. Wagenbach uses an empirical method, while Strong relies heavily on intuition. With a laugh, Strong recalls how Wagenbach once "wrapped a student in tin foil"—at least that's what it looked like—to explore the concept of heat

It made perfect sense for an architect (Strong) and a biologist (Wagenbach) to co-teach a course aimed at integrating the built and natural environments.

HEATHER BEAL

Above: EcoHouse will likely be constructed in the open area of a thickly foliaged site (upper-right quarter of photo), providing residents with a wide-open view of a campus lake and island to the south. Opposite: Jeff Lin (left), who portrayed an indentured servant in the PBS series Colonial House, *spoke to students about his sustainable-living experience and later helped construct a cordwood wall in the building lab.*

exchange. In actuality, Wagenbach bundled the student in a space blanket, taped down the edges, then asked for periodic reports on how the young man was feeling.

"He warmed up very quickly," Strong says. "Yet intuitively this made no sense because the thin space blanket doesn't provide much insulation value." Wagenbach explained that the blanket was reflecting long-wave energy created by the student's body. The class also observed that the heat-production cycle escalated because the student couldn't cool himself. "If we had let this go on too long, we would have had to douse his mitochondria with cyanide to stop the heat production," Wagenbach jokes. "Of course, that would have been fatal."

"Luckily, we didn't have to go that far," adds Strong, wryly.

Through experimentation, an essential element in both the scientific and artistic processes, the instructors have grown comfortable learning from each other and from their students. "Gary and I noticed that we dialogued more in class during the second year," Strong says. This classroom dynamic instills a sense that "there are few prescribed solutions" for designing sustainably; as a result, students are more willing to voice their ideas and opinions.

During a lecture about wind roses (diagrams illustrating wind patterns across a site), for example, a student asked, "What makes the wind blow?" Strong answered that variations in low- and high-pressure gradients cause air to flow between them. A geology major then spoke up, explaining how the combination of the earth's rotation and topographical features such as plateaus and mountains generates wind.

"Since the class is open to freshmen through seniors from all disciplines," Wagenbach says, "we have to respond to the mix of students who walk through the door."

Charting a New Course

While the diversity of students enriches the creative experience, it also complicates the planning process for a course taught incrementally over several years. "Since the class is open to freshmen through seniors from all disciplines," Wagenbach says, "we have to respond to the mix of students who walk through the door." Thus the instructors have tried to achieve a "structured openness" by blending conventional classroom lectures with guest-speaker presentations, field trips, computer exercises, and hands-on construction activities.

The required-reading list includes books and web sites on topics ranging from biomimicry, permaculture, and regenerative design to the history of the American home, current housing and lifestyle trends, and the values and practices of indigenous peoples. Guest speakers have included architects and engineers specializing in sustainable design, such as Rick Carter, AIA, of LHB; John Carmody, director of the University of Minnesota's Center for Sustainable Building Research; and David Eijadi, AIA, and Jay Johnson, AIA, from The Weidt Group; as well as people with sustainable-living experience, such as Jeff Lin, who lived off the land while portraying an indentured servant in the PBS series *Colonial House*, and Allan Stanowitz, who built his own cordwood house in La Crescent, Minnesota. In 2004, the students had breakfast with William McDonough, FAIA, noted green architect and coauthor of *Cradle to Cradle: Remaking the Way We Make Things* (2002).

While each segment of the EcoHouse course addresses aesthetics, energy use, life-cycle costs, and the relationship between a building and its site, community, and culture, the course "themes" and two-thirds of the course content vary from year to year. The inaugural class (2004) focused on answering the question: "What is natural for Northfield, Minnesota?" Students researched the history of the region and reviewed case studies on housing types "native" to North America. Then they experimented with indigenous materials and construction techniques by building and testing three types of natural wall systems: straw bale, rammed earth, and cordwood. They concluded that the straw-bale system was best because it offered the highest insulation value for the lowest energy costs.

The students also used the overlaying approach detailed in Ian McHarg's *Design with Nature* (1969)—transparencies, each addressing a specific parameter, are placed on the site plan so that unsuitable building locations are obscured and the most desirable is highlighted—to systematically analyze seven possible sites for EcoHouse. Four were subsequently recommended. As the first term progressed, however, the instructors became "subliminally aware" that, even after completing rigorous site analyses, the students seemed "disconnected from the land."

HEATHER BEAL

GARY WAGENBACH

GARY WAGENBACH

Year Two

In 2005, the instructors narrowed the focus of the course by selecting one site from the four finalists and prescribing straw-bale walls for three sides of a student-built test structure. "We hoped this approach would enable students to gather greater detail about the unique characteristics of a single site and, in turn, design a home that captured and employed the site's natural energy flows," says Strong.

To catalyze a debate on the relationship between the built and natural environments, the instructors showed the 2005 class a photo of a five-bedroom house that had recently been constructed near Northfield. The house sat on a five-acre lawn and most of its windows faced north. "We asked if there were any environmental issues we should be concerned about with this house," Strong says. The two assumed that students would identify at least a few of the issues—for example, the lack of solar orientation—but the students didn't think anything needed to be changed.

"We were shocked," Wagenbach says. Notes Strong: "We found that the students could relate to a structure and its characteristics but not its connection to the land," adding that, on further reflection, he and Wagenbach shouldn't have been surprised by the students' response, since "most people in Western countries view achievement of human comfort as disconnected from their surroundings."

To deepen the students' understanding of environmental issues, the instructors divided the class into four teams and had the teams research renewable energy sources and technologies while documenting in greater detail the natural characteristics of the EcoHouse site. The students then used this combined information to design a south wall for the test structure that optimizes solar gain and achieves a desired level of natural lighting. While all four teams were required to use translucent polycarbonate and insulated foam panels on the south wall,

"You can only learn so much by thinking about a project," says one student. "The real education takes place when you actually build it and have to solve problems."

they were free to incorporate thermal massing, light shelves, sun shading, and other eco-efficient strategies into their final designs. In the end, the students concluded that passive-solar design strategies would need to be supplemented by an additional heat source to maintain year-round interior comfort.

A Positive Influence

In spring 2006, students will design a "living machine" and explore ways to minimize waste that flows into, through, and out of EcoHouse while dealing with any waste created in a sustainable manner. Although the instructors may still be pondering how best to attune students to nature, there is little doubt that the EcoHouse endeavor is taking hold. For example, research leading up to and resulting from the course is now spilling into future Carleton building projects, such as a 40-unit student residence designed by LHB that will break ground in fall 2006. "We've proposed incorporating some living-machine ideas into this building's design, such as separating gray and black water from storm-water drainage systems," Strong says.

The course has also spawned related classes, including one taught by Wagenbach that explored how to feed the future residents of EcoHouse in a sustainable manner, and independent-study projects, such as the construction of a small section of green roof atop a campus science building and an economic analysis of investing in wind power. "You can only learn so much by thinking about a project," says Jason Lord, one of two former EcoHouse students who led the green-roof project. "The real education takes place when you actually build it and have to solve problems."

Strong and Wagenbach attribute the high level of interest in EcoHouse to the fact that designing a home is an ideal way to engage students in the discourse about sustainability. Sociology major Josh Tolkan, who took the 2004 course and served as a teaching assistant the following spring, concurs: "The class provides a practical way to take environmental action, because it aims to improve the quality and efficiency of life."

"Of course," Wagenbach adds, "building a tepee and leaving it in a prominent campus location as part of our exploration of indigenous dwellings has helped raise awareness, too. Whenever there's a teachable moment, we take it."

JASON LORD AND DAVE HOLMAN

JASON LORD AND DAVE HOLMAN

Opposite: 2005 EcoHouse students used translucent polycarbonate and insulated foam panels to construct the south wall of a test structure. This page, top: Students from the 2004 class later designed and installed a green roof on a canopy overlooking the loading dock of a campus building. The students first tested plant materials by growing them in wooden boxes (bottom).

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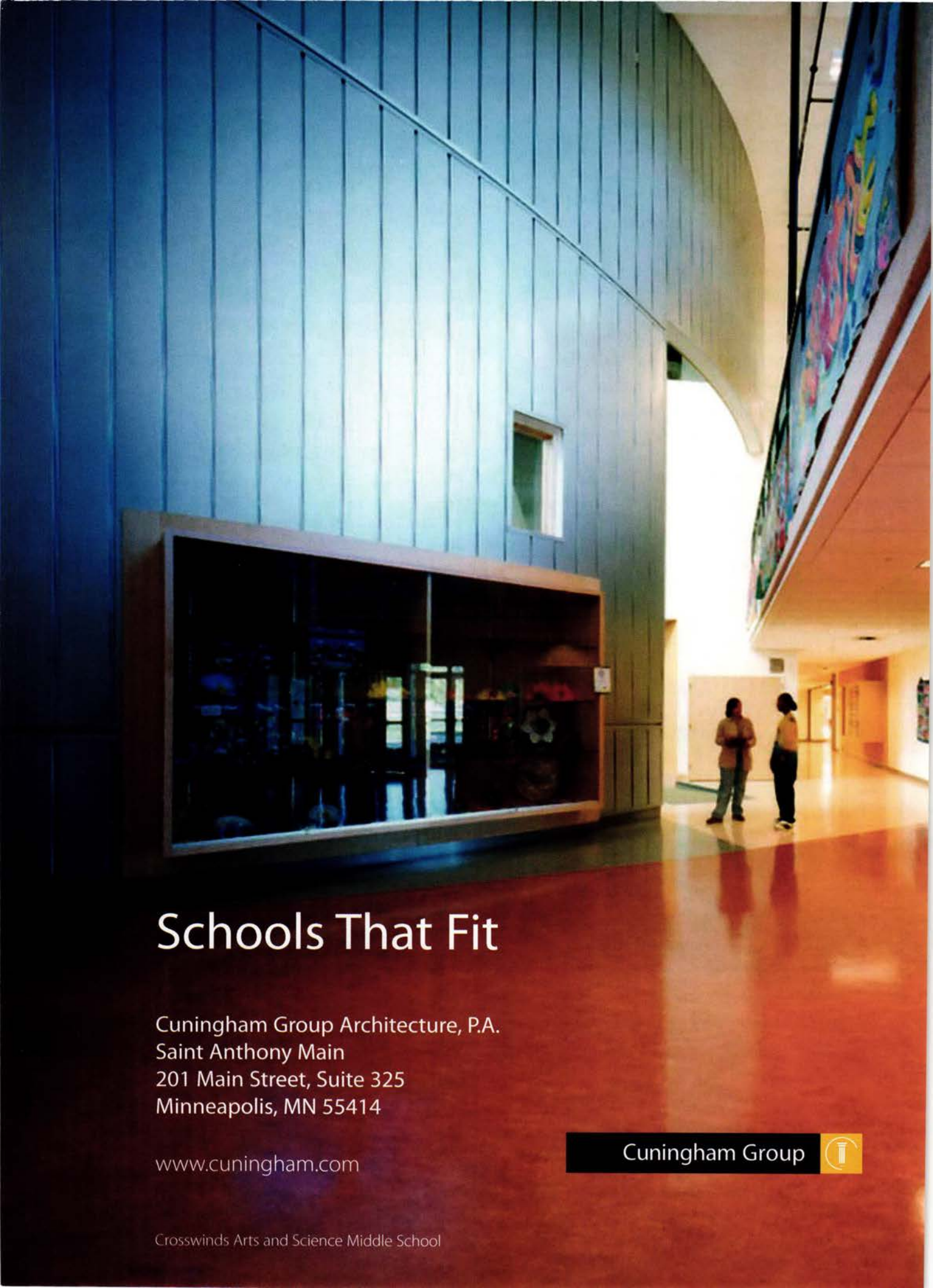

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citizen architect

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biology, civics, law, and mathematics. These classes begin to prepare students to discuss medical issues with a doctor, talk legal issues with a lawyer, vote in an election, and calculate tax returns. Nowhere in secondary education, however, do we teach young people to appreciate the impact of the built environment on their daily lives, or to take informed action in support of or against a development proposed for their neighborhood.

The Environmental Literacy Project, now in its fifth year, aims to fill this void, albeit on a modest scale. The annual eight-week program pairs middle school and high school students with architecture majors from the University of Minnesota, who lead the students through a series of exercises designed to open their eyes to the place they know best—their own neighborhood. Using basic planning tools such as aerial maps and surveys, students begin to decode their surroundings. They identi-

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fy cultural landmarks such as parks and libraries, map their routes to and from school, and study historical fire-insurance maps and photographs to understand changes in the neighborhood over time.

From the start, deLaittre was struck by how observant and insightful the students were, given only a little encouragement. "Kids, especially urban kids, are very aware of their environment," she says. Getting them to dig a little deeper is, quite literally, child's play.

At the end of the program, students present their research, analysis, and design proposals to key stakeholders in the neighborhood—a school principal, for example, or neighborhood development committee. Students from the 2002 session completed designs for a new playground and park. Neighborhood leaders were so impressed by the work that they included the designs in the area's master-plan requirements.

While the Environmental Literacy Project may inspire a few students to pursue careers

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in the design professions, the greater goal is to shape a new generation of "enlightened decision makers"—residents and business owners who will have both the desire and know-how to create more livable communities. deLaittre only wishes the program could reach more students.

Minnesota architect and educator Josh Weinstein is sympathetic, believing that exposure to the architectural profession is too often a matter of happenstance, especially for minority and "at risk" students whose familial and social networks do not often include design professionals. Currently, only 11 percent of all registered architects in the U.S. are people of color, despite the fact that non-Caucasians account for 28 percent of the adult population, according to the 2000 census. That's a big gap, one that Weinstein hopes to help close with the Architectural Youth Program, or AYP.

The program, which Weinstein founded in New York City in the early 1990s (he

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citizen architect

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brought it with him to Minneapolis in 1994), brings minority and inner-city teens into contact with practicing architects and gives them a chance to design a theoretical project. Each class gathers 15 to 35 interested high school students from across the Twin Cities, consists of 12 after-school sessions, and culminates in a final design jury. Along the way, students tour architecture offices, hear presentations by local architects, visit a project site, build models, and otherwise walk the varied paces of the design process. KKE Architects hosts the Minneapolis program each fall. Wold Architects and Engineers hosts a spring program in St. Paul, added in 1998.

For Weinstein, putting a face on the profession is an essential part of the program. "When I was a kid, my only role model was Wilbur from the 1950s television comedy *Mr. Ed*," he jokingly explains to each new class. "All I knew about being an architect is that you worked in a barn and your best friend was a talking horse." Through AYP,

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citizen architect

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students get to see a lot of new faces, none of them equine.

Building on AYP's success, Weinstein has collaborated with the Weisman Art Museum on a condensed version of the program, a five-day summer workshop titled "Architecture, the Weisman, and You." At "architecture camp" (the shorthand name), 40 students attend talks by various design professionals and community stakeholders, tour significant local design projects, and try their hand at designing a hypothetical project. Now in its sixth year thanks to financial support from the Carolyn Foundation and St. Paul Connections, the workshop is a huge hit with students, who often comment afterward that they wish they had had more time to design. That's a sure sign they're hooked.

Both AYP and the Environmental Literacy Project rely on the participation of undergraduate and graduate architecture students at the University of Minnesota, and Weinstein and deLaittre say they are deeply in-

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debted to CALA dean Tom Fisher for dedicating essential resources and staff time to keep the programs running. They suggest, independently, that such support is critical.

Chances are they're right. While similar programs have emerged around the country, few if any have achieved the success and vitality of those located in the Twin Cities. Without the perseverance and conviction of a handful of people, these local programs might, like their national counterparts, wane and disappear.

But perhaps Minnesota has more reason to be hopeful. Already, many former participants have gone on to become architecture students and also mentors in the programs that first piqued their interest. I hope enough of them, and us, are inspired to carry the torch forward. ❖

For more information on these programs, or to receive copies of "Being an Architect," a brochure produced by AIA Minnesota for middle school and high school students, please contact the editor at hudson@aia-mn.org

endangered

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Unfortunately, though the buildings are certainly capable of taking on new lives, there may not be sufficient demand for reuse. Morris mayor Carol

> The buildings evoke school life, yes, but also the warmth and clamor of small-town community gatherings.

Wilcox says that a local church has approached city officials about using the auditorium, and that she knows of other inquiries for space. A few reuse issues have yet to be resolved, such as

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endangered

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the problem of the whole complex having a single heating system, and of mold in one of the newer sections of the complex. But Wilcox says the city remains committed to finding new uses for the school.

The architecture of school buildings, like that of churches and courthouses, tends to age well. One obvious reason for this is that, as cultural landmarks, schools are the beneficiaries of a dedication to quality design and craftsmanship. But there is another, more subtle reason: Schools are creators and repositories of memory, both individual and collective, and this colors our regard for them. Our school experiences, especially the early ones, are imprinted in us for the rest of our lives. Of all the buildings we should find whole when we try to revisit them, it should be our schools. ❖

Welcome to Architecture Minnesota's 10th Annual Directory of General Contractors. The following paid listings were solicited from the membership of the Associated General Contractors (AGC) of Minnesota, a statewide association of building, heavy/industrial, highway and municipal/utility contractors since 1919, and from other sources.

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Other MN Office: Brainerd Lakes Area, 218/568-5310
Total in MN Offices: 24
Contact: Jan Anderson, Dir. of Mktg., 612/874-9011 or 218/568-5310
—
Wayne D. Anderson, Pres/Owner.
Chuck Anderson, VP/Est.
Steve Schroeder, Senior Proj. Mgr.
Jan Anderson, Dir. of Mktg.
—
Continued on next column

Crawford Merz Construction takes great pride in our valued reputation of working successfully with architects, owners, and building committees in preparing budgets, providing guidance and support to the building owner, and developing continuing working relationships with clients and subcontractors. Our qualified and experienced field personnel, many with more than 20 years of experience with Crawford Merz Construction, provide our clients with proven quality workmanship.

■
DONLAR CONSTRUCTION
2277 West Highway 36, Suite 210W
Roseville, MN 55113
Tel: 651/227-0631
Fax: 651/227-0132
www.donlarcorp.com
Established 1972
Other MN Office: St. Cloud, 320/253-3354
Total in MN Office: 160
Contact: Ron Kraemer, 320/253-3354
—
Larry Dotte, Chrmn.
Don Kainz, CEO
Ron Kraemer, Pres.
Karl Anderson, CFO
Bill Boom, VP Proj. Mgmt.
—
Providing a full range of construction services including general contracting, construction management and design-build for commercial, institutional and industrial owners. Donlar has extensive experience in expansion, renovations and restoration.
—
Crosby Ironton High School, Crosby, MN; Buffalo High School, Buffalo, MN; College of St. Benedict - Benedicta Arts Center, St. Joseph, MN; CentraCare - Health Plaza Addition; Sherburne County Heritage Center; Upsala Public Schools, MN

■
J.E. DUNN - NORTH CENTRAL (formerly Witcher Construction Co.)
9855 West 78th Street, Suite 270
Eden Prairie, MN 55423
Tel: 952/830-9000
Fax: 952/830-1365
www.jedunn.com
Year Established: 1945
Total in MN Office: 213
Total in Other Offices: 2,280
Other Offices: Atlanta, GA, Charlotte, NC; Colorado Springs & Denver, CO; Dallas, TX; Des Moines, IA; Houston, TX; Kansas City, MO; Nashville, TN; Orlando, FL; Portland, OR, Seattle, WA; Topeka, KS
Contact: Kenneth Styrlund, 952/830-9000
—
Kenneth Styrlund, Pres
Scott Sharp, VP
Douglas Loeffler, VP
John Jacobs, VP
Harlan Hallquist, VP
Roger Helgeson, VP
—
J.E. Dunn provides services for design-build, general construction and construction management in the areas of health care, cultural, commercial, religious, retail and multi-family residential/ multi-use.
—
The Museum of Russian Art, Minneapolis, MN; Minneapolis Institute of Arts, The Childrens' Theatre Company, Minneapolis, MN; The Mist on Lake Minnetonka, Spring Park, MN; Breck School Commons, Golden Valley, MN; Abbott Northwestern Hospital Child Care Business Development Center, Minneapolis, MN; University of Minnesota Jones Hall, Minneapolis, MN

■
FRANA AND SONS, INC.
633 Second Avenue South
Hopkins, MN 55343
Tel: 952/935-8600
Fax: 952/935-8644
E-mail: kglaros-hanson@frana.com
www.frana.com
Established 1977
Total in MN Office: 200
Contact: Kristen Glaros Hanson, 952/352-2694
—
Continued on next column

Peter J. Donnino, Pres./CEO
Michael Benedict, VP
Stuart Bestul, VP
—
Frana and Sons, Inc. is the leading housing general contractor in Minnesota. For 27 years, we have been offering construction management, design-build, preconstruction and development services for multi-family, senior and assisted living projects, as well commercial development.
—
Groveland Condominiums, Minneapolis, MN; St. Therese at Oxbow Lake, Brooklyn Park, MN; Grand Central Lofts, Columbia heights, MN; River Run Apartments, Minneapolis, MN; Oxford Hills, St. Paul, MN; Delano Commons, Delano, MN

■
C.F. HAGLIN & SONS, INC.
3939 West 69th Street
Edina, MN 55435
Tel: 952/920-6123
Fax: 952/920-5318
E-mail: ggunderson@cfhaglin.com
www.cfhaglin.com
Established 1873
Total in MN Office: 20
Contact: Gary Gunderson, 952/920-6123
—
Thomas B. Roberts, Chrmn./CEO
Gary J. Gunderson, Pres.
Doris A. Fritzen, CFO
—
C.F. Haglin & Sons, a full-service general contractor, provides general contracting, construction management and design/build services. We provide new construction and remodeling for clean rooms, offices, retail and industrial projects.
—
Southdale Square - Phase II, Edina, MN; Qwest Communications - Miscellaneous Projects; Metro-wide; General Mills - Miscellanous Projects, MN; Rosedale Center - Miscellaneous Projects, Roseville, MN; Madison Marquette Realty Services - Miscellanous Projects

■
HEYMANN CONSTRUCTION COMPANY
210 Third Street South
New Ulm, MN 56073
Tel: 507/354-3174
Fax: 507/354-3175
E-mail: heymann@newulmtel.net
Established 1918
Total in MN Office: 60
Contact: Jerry O'Brien, 507/354-3174

—

John P. Heymann, Chrmn.
John H. Heymann, Pres.
Jerry O'Brien, VP, CFO
Patricia Heymann, Sec.

—

Heymann Construction provides a full range of construction services including pre-construction, design/build and general construction. Heymann Construction self performs concrete, carpentry and masonry work. Operating throughout southern Minnesota, the firm has successfully completed a wide range of educational, religious, commercial, industrial, and health care facilities.

—

Martin Luther College, New Ulm, MN; Civic Center, New Ulm, MN; Sleepy Eye Medical Center, Sleepy Eye, MN; Madelia Elementary School, Madelia, MN; Schmidt Printing Addition, Byron, MN; Minnesota State University - Mankato, Student Athletic Facility Phase 3, MN

■
KM BUILDING COMPANY
801 2nd Avenue North
Minneapolis, MN 55405
Tel: 612/977-9060
Fax: 612/977-9061
E-mail: sfaber@kmbldg.com
www.kmbldg.com
Established 1964
Total in MN Office: 35
Contact: Steven Faber, 612/723-6113

—

Steven Faber, COB
John Ryan, Pres.
Jim Johnson, VP
Scott Anderson, Sr. Proj. Mgr.
Krista Roering, Proj. Mgr.
Jodi Imdieke, Asst. Proj. Mgr.

—

Continued on next column

KM Building Company is a hands-on, full-service general contractor that provides personal service and experience on every project with a commitment to unparalleled quality, value and service. Services include general contracting, design-assist, pre-construction, construction management, and post-construction. Successful projects require a solid foundation of trust and commitment. Most of our business is repeat business because we fulfill our commitments and keep our promises.

—

Immaculate Heart of Mary School & Church Additions, Minnetonka, MN; Historic Straus Knit Building Housing Conversion, St. Paul, MN; General Mills Tenant Improvement, Plymouth, MN; Lafayette Country Club Renovation, Deephaven, MN; Jeremiah Program Apartment Complex, Minneapolis, MN; Starbucks/Jimmy Johns Retail Center, Plymouth, MN

■
KNUTSON CONSTRUCTION SERVICES, INC
5500 Wayzata Boulevard, Suite 300
Minneapolis, MN 55416
Tel: 763/546-1400
Fax: 763/546-2226
www.knutconstruction.com
Established 1911
Other MN Office: Rochester, 507/280-9788
Total in MN Offices: 350
Other Office: Iowa City, IA
Total in Other Office: 125
Contact: Geoff Gluekstein, 763/546-1400

—

Steven Curry, President/CEO
Chadwick Lewis, Exec. VP
Edward Curtiss, VP
Michael Wolf, CEO
Lawrence Trom, VP
Todd Schilling, VP

—

Knutson Construction Services, Inc. provides construction management, general construction, design/build and turn-key services utilizing in-house project management and estimating personnel, state-of-the-art software systems, and highly trained, skilled construction professionals. Knutson employs a national, award-winning work force of 250-450 skilled craftspeople, who allow us the capability to self perform concrete, masonry, rough and finish carpentry, iron work and stone work.

—

Continued on next column

Children's Hospital, New Tower Addition & Parking Ramp, Minneapolis, MN; Park Nicollet Heart & Vascular Center, Methodist Hospital, St. Louis Park, MN; Fairview Southdale Hospital, Edina, MN; Minnesota Human Services, St. Paul, MN; Metropolitan Waste Water Treatment Plant, St. Paul, MN

■
KRAUS-ANDERSON CONSTRUCTION COMPANY
525 South 8th Street
Minneapolis, MN 55404
Tel: 612/332-7281
Fax: 612/332-0217
E-mail: jcampobasso@k-a-c.com
www.krausanderson.com
Year Established 1897
Other MN Offices: Circle Pines (763) 786-7711, Bemidji (218) 759-0596, Duluth (218) 722-3775, Lino Lakes (763) 792-3677
Total in MN Offices: 650
Other Offices: Kansas City, KS; Madison, WI; Naples, FL; Phoenix, AZ
Total in Other Offices: 50
Contact: John Campobasso, 612/332-7281

—

Bruce W. Engelsma, Chrmn/Pres/CEO
Alan A. Gerhardt, Sr. VP, Mpls.
Keith Beneke, Dir., St. Paul
Dave Mervin, Sr. VP, Bldg.
Gary R. Hook, Sr. VP, Midwest Div.
John Davies, Dir. North

—

Kraus-Anderson Construction Company is a leading provider of general contracting and construction management services. Our projects are delivered within a team-oriented format, working together with all parties, so informed decisions can be made prior to the commencement of construction. We are dedicated to providing quality projects on schedule that meet our clients' expectations.

—

Boston Scientific, Maple Grove, MN; Grand Itasca Clinic & Hospital, Grand Rapids, MN; Midtown Lofts, Minneapolis, MN; Bloomington Care Center, Bloomington, MN; Cabela's, Rogers, MN; Forestview Middle School, Baxter, MN

■
LAKELAND ENTERPRISES, INC.
P.O. Box 15001
Lakeland, MN 55043
Tel: 651/436-8444
Fax: 651/436-6515
Established 1964
Total in MN Office: 105
Contact: Ronald Hockin, 651/789-1162

—

Ronald Hockin, Pres.
Gary Balk, CFO
Cindy Ecklund, Safety Dir.
Mike Leuer, Pres., Tower Asphalt, Inc.
Reuben Mausolf, Pres., Three Rivers Construction, Inc.
Mark Jeffries, Pres., Terra Services, Inc.

—

Lakeland Enterprises performs highway heavy and municipal construction work as three divisions, these being Tower Asphalt, Inc., Three Rivers Construction, Inc. and Terra Services, Inc. We own and operate a state-certified Hot Mix Asphalt plant on the Minnesota/Wisconsin border 15 miles east of downtown St. Paul. We are experienced in base work, asphalt paving, underground sewer and water and erosion control measures. We are experienced in the construction of roads, highways, airports, new developments and commercial construction. Lakeland Enterprises performs work that is competitively bid and negotiated as a General Contractor and as a subcontractor.

—

I-94 between Roberts and Hammond, WI; Asphalt Paving at Holman Field; Reconstruct in Hastings, MN; New Developments in Rosemount, MN

■
MCGOUGH COMPANIES
2737 Fairview Avenue North
St. Paul, MN 55113
Tel: 651/633-5050
Fax: 651/633-5673
E-mail: bwood@mcgough.com
www.mcgough.com
Established 1956
Other MN Office: Rochester, 507/536-4870
Total in MN Offices: 600
Other Office: Phoenix, AZ
Total in Other Office: 50
Contact: Bradley S. Wood, 651/634-4664

—

Thomas J. McGough, Sr., Pres./CEO
Thomas J. McGough, Jr., Exec. VP/COO
Dennis Mulvey, AIA, VP Preconstr. Serv.
Richard E. Optiz, Sec./Treas./CFO
Michael J. Hangge, Exec. VP, Oper.
Bradley S. Wood, Exec. VP, Mktg.

—

McGough works with some of the region's most notable companies and has an unmatched reputation for delivering projects on time and within budget. Primary services/specialties include general contractor, design/build, construction manager, strategic facility planning, build-to-suit, development services and facility management.

—

Cathedral of St. Paul, St. Paul, MN; General Mills World Headquarters, Golden Valley, MN; Guthrie Theater on the River, Minneapolis, MN; Medtronic World Headquarters, Fridley, MN; Protein Design Labs, Brooklyn Park, MN; University of Minnesota, Minneapolis, MN

■
M.A. MORTENSON COMPANY
700 Meadow Lane North
Minneapolis, MN 55422-4899
Tel: 763/522-2100
Fax: 763/287-5430
E-mail: web.admin@mortenson.com
www.mortenson.com
Established 1954
Other Offices: Chicago, IL; Denver, CO; Milwaukee, WI; Seattle, WA; Phoenix, AZ
Contact: John Wood, 763-287-5516

—

Continued on next column

M. A. Mortenson, Jr., Chrmn./CEO
Tom Gunkel, Pres./COO
John Wood, Sr. VP

—

Mortenson is a diversified construction company providing its customers with state-of-the-art services in general contracting, construction management, design/build, and turn-key development. Mortenson ranks as the 33rd largest construction firm in the 2004 ENR rankings.

—

Walt Disney Concert Hall, Los Angeles, CA; Minneapolis Central Library, Minneapolis, MN; Walker Art Center Expansion, Minneapolis, MN; Ramsey County Public Works Facility, Arden Hills, MN; Abbott Northwestern Heart Hospital, Minneapolis, MN; Minneapolis Public Radio Expansion, St. Paul, MN

■
OLSON GENERAL CONTRACTORS, INC.
9201 52nd Avenue North, Suite 1
New Hope, MN 55428
Tel: 763/535-1481
Fax: 763/535-1484
E-mail: mail@olsongc.com
www.olsongc.com
Established 1909
Total in MN Office: 18
Contact: Tom Moran, 763/201-6693

—

Robert Olson, Pres.

—

Experienced industrial/commercial general contractor focusing primarily on negotiated design/build projects. Portfolio of recent projects includes new industrial and institutional projects as well as office build-out and remodeling within both contemporary and historically-significant buildings. Olson places special emphasis on the design/build team relationship as key to reaching owners' objectives.

—

St. Paul Union Depot - Restoration and Condo Conversion; Augustine Biomedical - Office Buildout; Murphy Warehouse Remodeling; Open Book Restoration & Buildout; Skway Events Corporate Headquarters; Walter G. Anderson - Additions

■
MIKE OTTO CONSTRUCTION, INC.
210 Dean Avenue East
Champlin, MN 55316
Tel: 612/245-5826
Fax: 763/205-2484
E-mail: miao.chen@moconstruction.com
www.moconstruction.com
Established 1992
Total in MN: 5
Contact: Mike Otto, 612/245-5826

—

Miao "Carol" Chen
Mike Otto

—

Mike Otto Construction, Inc. (MOC) was founded in 1992 by Mike Otto. MOC is a design-build company that outsources design to architects and interior designers. MOC specializes in residential remodeling. MOC is a member of NARI and the Builders Association of the Twin Cities (BATC). In 2005, MOC received a ROMA award from the Remodelers Council of BATC.

—

Jansen and Palmer Residence - Master Suite Addition & Kitchen Renovation, Minneapolis, MN; LaFluer Mansion - Whole House Renovation (kitchen, office, bathrooms, bedrooms, exterior), Champlin, MN; Kitchen Remodel, South Minneapolis, MN; Witterholt Residence - Addition (kitchen, master suite), Anoka, MN; Addition, Robbinsdale, MN; Basement Finish, Minnetonka, MN

■
PCL CONSTRUCTION SERVICES, INC.
12200 Nicollet Avenue South
Burnsville, MN 55337
Tel: 952/882-9600
Fax: 952/882-9900
E-mail: jkjensvold@pcl.com
www.pcl.com
Established 1906
Total in MN: 300
Other Offices: San Diego & Los Angeles, CA; Atlanta, GA; Denver, CO; Orlando & Tampa, FL; Phoenix, AZ; Seattle, WA
Total in Other Offices: 5000
Contact: John Jensvold, 952/882-2572

—

Continued on next column

Fred G. Auch, VP/Dist. Mgr
Don Fromme, Const. Mgr.
Bruce Lowell, Admin. Mgr.
Daniel Ilten, PE, AIA, Dir of. Design & Constr.
Brad Hendrickson, Chief Est.
John Jensvold, Mgr., Bus. Dev.

—

PCL is one of North America's strongest and most diversified general contractors. We specialize in design-build and design-assist projects where we contribute leading-edge estimating and cost-modeling tools to the design phase. PCL currently operates 24 district and project offices across the United States and Canada.

—

Block E and Graves 601 Hotel, Minneapolis, MN; Science Museum of Minnesota, St. Paul, MN; Mystic Lake Hotel, Prior Lake, MN; Mall of America, Bloomington, MN; CentraCare Health Plaza, St. Cloud, MN; American Express Client Service Center, Minneapolis, MN

■
ROSEWOOD CONSTRUCTION SERVICES CORP.
2340 North Lexington Avenue
Roseville, MN 55113
Tel: 651/631-1300
E-mail: aphilger@rosewoodportfolio.com
www.rosewoodportfolio.com
Established 1991
Total in MN: 9
Other Offices: Eau Claire and Wausau, WI
Total in Other Office: 15
Contact: A. Peter Hilger, AIA, 651/631-1300

—

A. Peter Hilger, AIA, Principal - Arch.
William Bartolic III, Principal - Constr.
Brenda Carlson, CFO, Principal - Admin.
Brian Pischel, VP
Robert Grapentin, VP
Dan O'Mara

—

Specializing in design-build and construction management for retail, commercial, educational, medical and industrial facilities

—

St. Croix Central School District, Hammond, WI; Covantage Credit Union Headquarters, Antigo, WI; New Horizon Childcare, Twin City Metro Area, MN; Walgreen Drugstore, Sartell, MN; Snelling Business Center, St. Paul, MN; Woodbury City Center (13 Buildings), Woodbury, MN

■
RYAN COMPANIES US, INC.
50 South 10th Street, Suite 300
Minneapolis, MN 55403
Tel: 612/492-4000
Fax: 612/492-3000
E-mail: ellacarlsson@ryancompanies.com
www.ryancompanies.com
Established 1938
Total in MN Office: 406
Other Offices: Cedar Rapids, Davenport and Des Moines, IA; Chicago, IL; Phoenix, AZ; San Diego, CA
Total in Other Offices: 289
Contact: Ella Carlsson, 612/492-4474
—
Jim Ryan, CEO
Pat Ryan, Pres.
Tim Gray, CFO
Jeff Smith, Pres., Midwest Div.
John Strittmatter, Pres., SW Div.
Marc Gullickson, Pres. Iowa
—
Ryan Companies US, Inc. is a leading national commercial real estate firm offering integrated design-build and development as well as asset, property and facilities management services to customers. For more than 65 years, Ryan Companies has used a single-source approach that offers flexibility in defining the scope of a project and strength in providing effective, timely solutions resulting in a higher certainty of success.
—
Upper Landing, St. Paul, MN; River Parkway Place, Minneapolis, MN; Energy Park Corporate Center, St. Paul, MN; Target and SuperTarget Stores, Multiple Locations throughout the U.S.; Target Distribution Centers, Multiple Locations throughout the U.S.; Mercy Care Clinics, Multiple Iowa Locations

■
SHAW-LUNDQUIST ASSOCIATES, INC.
2757 West Service Road
St. Paul, MN 55121
Tel: 651/454-0670
Fax: 651/454-7982
E-mail: info@shawlundquist.com
www.shawlundquist.com
Established 1974
Total in MN Office: 75
Contact: Howell Shaw, Dir. Mktg./Bus. Dev., 651/454-0670
—
Fred Shaw, Pres.
Hoyt Hsiao, VP
Thomas Meyers, VP
—
Shaw-Lundquist is one of the Top 20 General Contractors in the Region. We build all types of projects, including multifamily, educational, retail, & medical, with the most appropriate delivery method, on time and on budget. We self-perform concrete and carpentry. We listen Intently to our clients, respond quickly and communicate pro-actively. In the spirit of teamwork, we create "win-win" situations for our clients, our Subcontractors, and ourselves.
—
Minnesota Department of Agriculture/Minnesota Department of Health Lab, St. Paul, MN; Metropolitan Council Headquarters, St. Paul, MN; Midtown Exchange PPL Condominiums, Minneapolis, MN; The Retreat at Garden Gate, Woodbury, MN; Xcel Energy AS King Plant, Bayport, MN; Catalina Specialty Foods, Eagan, MN

■
VUJOVICH DESIGN BUILD, INC.
International Market Square Building
275 Market Street, Suite 521
Minneapolis, MN 55405
Tel: 612/338-2020
Fax: 612/338-2323
E-mail: info@vujovich.com
www.vujovich.com
Established 1978
Other MN Office: Afton, 651/998-0533
Total in MN: 20
Contact: Beth Malmberg, Dir. Sales & Design, 612/338-2020
—
Peter Vujovich, CEO
Ed Roskowinski, CR, Pres./GM
Tom Zerull, Dir., Prod.
Loren Johnson, Dir., Fin.
—
For 27 years, Vujovich has been building its reputation for creativity, craftsmanship and customer service. We design, build and remodel projects ranging from simple repairs to complete transformations of sophisticated contemporary and period homes. Vujovich combines the brightest talent in the Twin Cities with our own project managers and craftspeople to create results well beyond the standards of the industry.
—
Housley Residence at St. Mary's Point, Afton, MN; Rominski Residence at St. Mary's Point, Afton, MN; Peterson Residence at Lake of the Isles, Minneapolis, MN; Hotchkiss Residence at Kenwood, Minneapolis, MN; Hunnewell Residence at Country Club, Edina, MN; Urban Retreat Project at Lake Calhoun, Minneapolis, MN

■
WATSON-FORSBERG CO.
1433 Utica Avenue South, Suite 252
Minneapolis, MN 55416
Tel: 952/544-7761
Fax: 952/544-1826
E-mail: cindyh@watson-forsberg.com
www.watson-forsberg.com
Established 1965
Total in MN Office: 40
Contact: Dale Forsberg, 952/544-7761
—
Dale Forsberg, Pres.
Mike Ashmore, VP
David Forsberg, Sec./Treas.
Donna Lucero, Controller
Dave Carlson, Sr. Proj. Mgr.
—
Watson-Forsberg Co. builds: commercial, multi-family, retail, religious, educational, medical and industrial projects. New construction projects and renovation, ranging from $10,000 to $25,000, competitively-bid and negotiated. Watson-Forsberg constructed the environmentally responsible Erickson Headquarters and St. Joan of Arc. Projects recognized by the Committee on Urban Environment, AIA, *Minnesota Real Estate Journal*, National Historic Trust and Minneapolis HPC
—
East Village Apartments, Minneapolis, MN; Hazelden Meditation Center, Center City, MN; Redeemer Missionary Church Renovation, Minneapolis, MN; YWCA Cathedral Hill Remodeling, St. Paul, MN; Redstone Grill, Eden Prairie, MN; Walker on Lyndale Seniors, Minneapolis, MN

VISITOR CENTER AT COMO PARK ZOO AND CONSERVATORY

Location: St. Paul, Minnesota
Client: City of St. Paul, Division of Parks and Recreation
Architect: Hammel, Green and Abrahamson, Inc. (HGA)
Principal-in-charge: Gary Reetz, AIA
Project manager: Greg Haley, AIA
Project architect: Bob Lundgren, AIA
Project lead designer: Kara Hill, AIA
Project team: Cheryl Amdal; Nancy Blankfard, AIA; Chad Clow; Douglas Coffler; Dan Grothe; Rebecca Krull, AIA; Frank Martin; Linda Morrissey, AIA; Patrick Thibaudeau
Structural engineering team: Tony Staeger (HGA)
Mechanical engineering team: Vicki Violet; Ole Meerwald (HGA)
Electrical engineering team: Terry Tangedahl; DeeDee Liebrecht (HGA)
Civil engineering team: Mark Flumerfelt (HGA)
Lighting designer: Pat Hunt (HGA)
Interior design: HGA
Owner's representative: Amy Dahlke (CPMI)
General contractor: Shaw-Lundquist Associates
Stone: Vetter Stone Company
Masonry and stone installation: B&L of Aitkin
Cabinetwork: Paul's Woodcraft
Curtainwall, windows, and skylights: Harmon, Inc.
Curtainwall manufacturer: Moduline
Skylight manufacturer: Architectural Skylight Co.
Glass: Viracon
Structural steel fabricator: Egger Steel Co.
Miscellaneous metals: Five Star Welding and Fabrication
Steel erection: Danny's, Inc.
Architectural metal panels: M.G. McGrath
Standing-seam metal roofing: M.G. McGrath
Concrete work: Shaw-Lundquist Associates
Waterproofing: Waterproofing by Experts
Millwork: Paul's Woodcraft; installation by J. Eiden Construction, Inc.
Hardware: Wheeler Hardware Co.
Louvers: Architectural Products
Elevators: Schindler Elevator Corp.
Mechanical systems: Northern Air Corporation
Electrical: Kehne Electric, Inc.; Parsons Electric
Sprinklers: Viking Automatic Sprinkler Company
Photographer: Peter Bastianelli-Kerze

TULANE UNIVERSITY CENTER

Location: New Orleans, Louisiana
Client: Tulane University
Architect: VJAA, in association with James Carpenter Design Associates and Transsolar
Design principals: Vincent James, FAIA; Jennifer Yoos, AIA
Managing principal: Nathan Knutson, AIA
Senior project architect: Paul Yaggie, AIA
VJAA project team: Carl Gauley; Lev Bereznycky; Karen Lu; Steven Philippi; Andrew Dull; Taavo Somer; Bob Loken; James Moore, AIA; Dzenita Hadziomerovic; Donovan Nelson; Mark Searls, AIA; Malini Srivastava; Dan Clark; Casey Renner; Aaron Roseth; Eric Whittington
Artist and glazing consultant: James Carpenter Design Associates (JCDA)
JCDA project team: James Carpenter; Richard Kress; Rayme Kuniyuki; Dietmar Geiselmann; Joe Welker; Ulrike Franzel; Henrike Bosbach; Marek Walczak; Jonathan Forsythe
Climate engineering: Matthias Schuler (Transsolar)
Consulting architect: Wayne Troyer Architect (WTA)
WTA project team: Wayne Troyer, AIA; Chris Goad, AIA; Irene Keil; Nancy Bowden-Stewart
Structural and civil engineering: Subhash Kulkarni; Dr. Aziz Sabri (Kulkarni Consultants)
Consulting engineer (pre-design phase): Arup
Mechanical, electrical, and plumbing: Moses Engineers
Lighting designer: Keith Schleusener (Moses Engineers)
Interior design: VJAA
Construction administration: Chris Goad, AIA (WTA); Lev Bereznycky (VJAA)
Landscape architect: Coen + Partners
Landscape project team: Shane Coen; Bryan Kramer; Travis Vanliere
Cabinetwork: Olsen Cabinet & Millwork
Flooring systems/materials: American Tile & Terrazzo
Window systems: New Orleans Glass/ Southern Walls
Architectural metal panels: G.M. Horne/Copper Sales (Una-Clad)
Concrete work: Broadmoor Construction/ Boh Bros. Construction
Millwork: Olsen Cabinet & Millwork
Photographer: VJAA

UNIVERSITY ENTERPRISE LABORATORIES

Design team (left to right): Jennifer Halligan, AIA; Marcelo Pinto; Debra Sloan; Thomas J. DeAngelo, FAIA; Mamie Harvey

Location: St. Paul, Minnesota
Client: University Enterprise Laboratories, University of Minnesota, State of Minnesota
Architect: Architectural Alliance
Principal-in-charge: Thomas J. DeAngelo, FAIA
Project architect: Jennifer Halligan, AIA
Project designers: Marcelo Pinto; Mamie Harvey
Project team: Nick Woodard, AIA
Structural engineering: Bob Curtis (Ericksen Roed and Associates); Terry Nuesse
Mechanical engineering: Rex Rundquist; Mark Roble; Mike Lee (Michaud Cooley Erickson)
Electrical engineering: Don Fairbanks; Jared Kovarik; Eric Stelmack (Michaud Cooley Erickson)
Lighting designer: Lisa Chaput (LightSpaces)
Interior design: Debra Sloan (Architectural Alliance)
Owner's representative: Bill Brusman (La Salle Group, Ltd.)
Contractor: Wes Will, project manager; Doug Revard, superintendent (Kraus-Anderson Construction–Minneapolis Division)
Landscape architect: Damon Farber Associates
Landscape project team: Damon Farber; Dana Schumacher
Cabinetwork: O'Keefe
Flooring systems/materials: Architectural Sales
Window systems: Minneapolis Glass Company
Architectural metal panels: Specialty Systems, Inc.
Photographer: Jim Mornes, AIA

HORIZON MIDDLE SCHOOL

Ted Rozeboom, AIA

Victor Pechaty, AIA

Location: Moorhead, Minnesota
Client: Moorhead Area Public Schools, ISD #152
Architect: Rozeboom Miller Architects
Principal-in-charge: Ted Rozeboom, AIA
Project architects: Victor Pechaty, AIA; Ben Braun, Assoc. AIA
Project lead designer: Victor Pechaty, AIA
Project team: Mark Kalar; Christina Kovacs; Cornel Bandelin, AIA; Peter Graffunder, AIA
Structural engineering team: Heyer Engineering
Mechanical engineering team: Beazley Engineering
Electrical engineering team: Ulteig Engineers
Civil engineering team: Ulteig Engineers
Interior design: Roxanne Lange (Rozeboom Miller Architects)
Construction manager: Kraus-Anderson Construction Company
Landscape architect: Oslund and Associates
Landscape project team: Tom Oslund; Tadd Kreun
Photographer: Don F. Wong

EAGLE VIEW ELEMENTARY SCHOOL

Design team (left to right): Matt Johnson, AIA; Jon Crump, AIA; Nate Miller

Location: Breezy Point, Minnesota
Client: Pequot Lakes Area School District
Architect: DLR Group
Principal-in-charge: Griff Davenport, AIA
Project manager: Matthew Johnson, AIA
Project lead designer: Jonathan Crump, AIA
Structural engineering: DLR Group
Mechanical engineering: DLR Group
Electrical engineering: DLR Group
Civil engineering: Landecker & Associates, Inc.
Interior design: Susan Herrington-Lasley (DLR Group)
Construction manager: DLR Group
Face brick: Belden
Rock face CMU: Anchor Block
Glazed CMU: Astra Glaze
Cabinetwork: Hauenstein & Burmeister, Inc.
Flooring systems/materials: wood gym: Robins Bio Cushion; synthetic gym floor: Robins Chemturf; carpet: Milliken; VCT: Armstrong
Window systems: aluminum entrance & storefront: EFCO; skylights: WASCO Products Skylights Systems
Architectural metal panels: Una-clad
Concrete work: Duncan Concrete, Inc.
Millwork: Osvold
Photographer: Don F. Wong

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PS Form 3526, October 1999 (Reverse)

MacPhail Center for Music

JAMES DAYTON DESIGN

WHO: James Dayton Design, Minneapolis, architect; Meyer, Borgman & Johnson, Minneapolis, structural engineer; Acoustic Dimensions, New York, acoustical consultant

WHAT: A new state-of-the-art home for the MacPhail Center for Music in Minneapolis' historic Mill District. The 58,000-square-foot facility, housing a performance hall, instruction studios, and early childhood development classrooms, will stand out from neighboring renovated mill buildings and neo-mill architecture with a modern exterior composed of Cor-Ten steel, tin-coated copper, glass curtain wall, and fiber-cement panels. In addition to the formal learning spaces, the new MacPhail features a large lobby that doubles as a secondary performance space, school offices, a café, and an outdoor performance courtyard.

WHERE: Minneapolis

WHEN: Spring 2007

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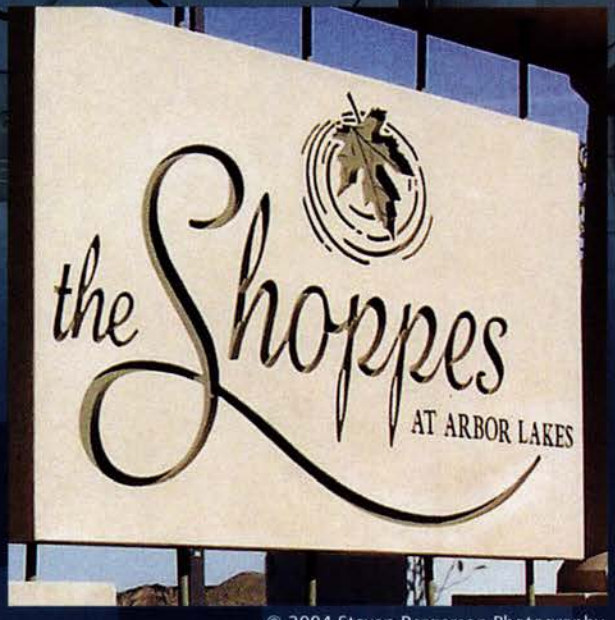

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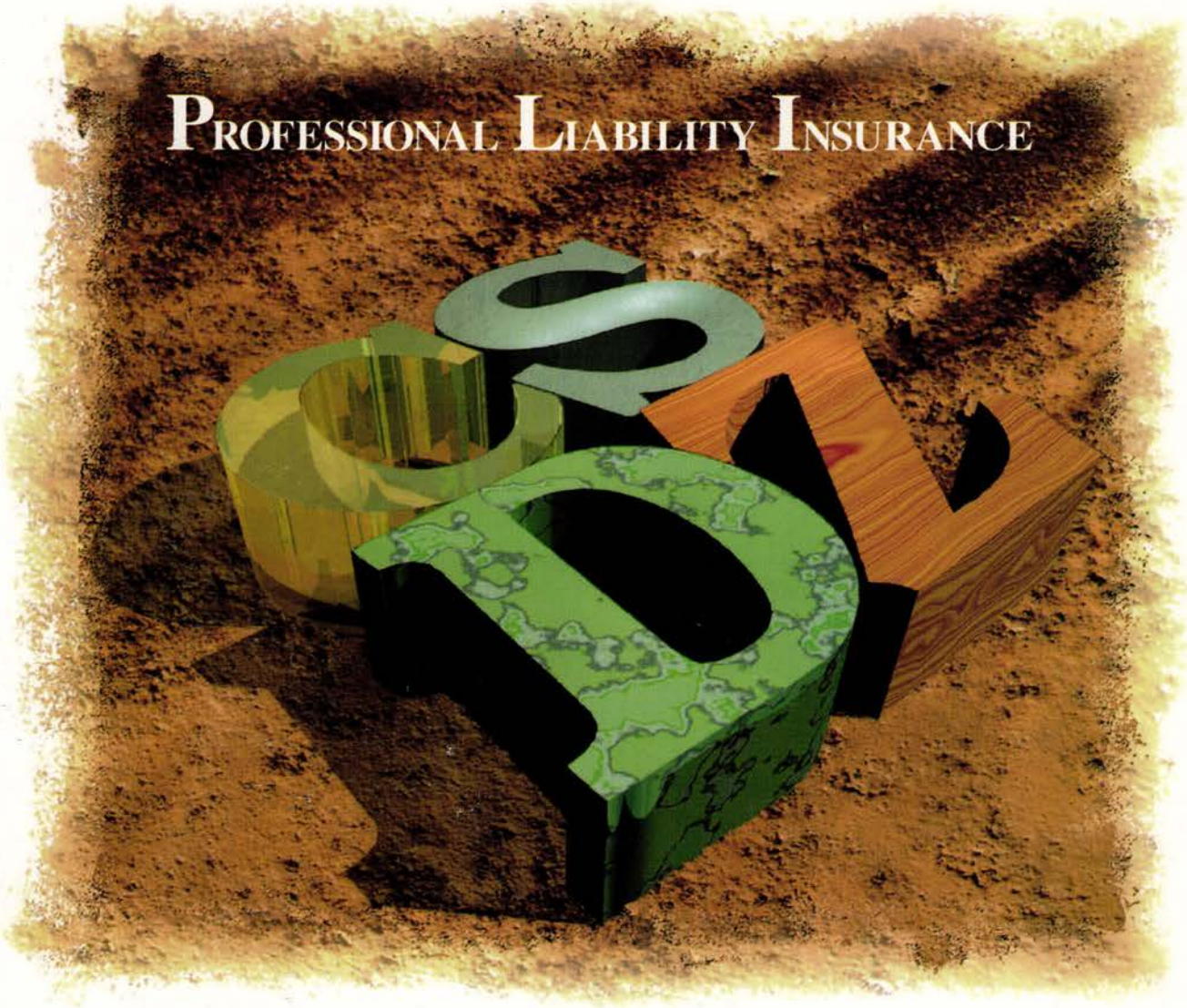

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