ARCHITECTURE

HALLOWED HALLS

New university projects in Minnesota and Wisconsin aim to enrich learning and community on campus. PAGE 19

CITY SCIENTIST

Metropolitan Design Center director Ignacio San Martin talks Twin Cities urbanismthe good and the bad. PAGE 36

BRAND NEW [GAME] DAY

Ski-U-Mah! Outdoor football returns to the University of Minnesota campus, and school spirit is on the rise. PAGE 40



VOLUME 36 NUMBER 01 JAN FEB 10 \$3.95

Architecture Minnesota is a publication of The American Institute of Architects Minnesota www.aia-mn.org

The sub-language states and the same

The sun sets on the first season at TCF Bank Stadium

PAGE 40







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Features

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Introduction by Bill Beyer, FAIA

School is back in session, in a variety of university buildings that foster social interaction, celebrate and inspire learning, and enhance their campuses.

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Street Seen: Health Sciences Building page 30 By Nancy A. Miller

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Ignacio San Martin interview

"Our challenge," says Ignacio San Martin, director of the U's Metropolitan Design Center, "is to search for a more sustainable lifestyle a quality of life that flows from living smarter, using fewer resources and disposing of less waste, and relying less on acquiring personal wealth in exchange for a more satisfactory collective and planetary well-being. Our combined efforts to achieve these goals can transform the Twin Cities into a landscape that is best suited to the aspirations of our society."

40 Brand New [Game] Day

By Linda Mack

Start up the Minnesota Rouser! The U builds the first new Big Ten stadium in nearly a half-century, and the results have Gopher fans on their feet. An intimate bowl, a dramatic skyline view, and echoes of Memorial Stadium combine to make this on-campus venue a (quarterback) keeper.



ON THE COVER

University of Minnesota TCF Bank Stadium Minneapolis, Minnesota.

"The newly built TCF Bank Stadium is proof of why Populous is the worldwide leader in sports architecture," say photographers **Christy Radecic** and **Joey Terrill**. "As photographers, we found so much to appreciate in every design detail the architects thoughtfully accomplished. It was truly a privilege to bring every distinctive facet to beautiful light."









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In Minneapolis, a groundbreaking partnership between the University of Minnesota and its surrounding neighborhoods begins to take shape.

School District

While assembling this issue on new university projects, I realized something: I've lived within a quarter-mile of a college or university all of my adult life. For the past nine years, I've lived within a block of Macalester, St. Thomas, or St. Kate's. (If you live in St. Paul, chances are you're only a stone's throw from a campus.) Proximity to an institution of higher learning has never topped my list of criteria for choosing a home, but it's always been a plus. What's not to like? Colleges often boast notable architecture, manicured grounds that invite evening and weekend strolls, a great library, and an array of cultural offerings.

Well, the picture isn't always that rosy, as many of you who've lived near a large or expanding school can attest. With their building campaigns and student-housing policies, universities can alter. for better or for worse, the character of entire neighborhoods. Which is why, for example, the Minnesota State Legislature commissioned an impact report in 2006 to learn what effects the U's new football stadium (page 40) might have on the surrounding community. The findings were somewhat surprising. "The report came back that the neighborhood reaction was stadium schmadium," says architect and area resident Richard Gilvard, AIA. "The stadium wasn't the issue-they'd had a stadium before. It was the impact of the university day in and day out, year in and year out, on the surrounding neighborhoods" that concerned residents.

The legislature acted on this report by authorizing. in 2007, the formation of the University District Alliance (*community.umn.edu/alliance*), a consortium of stakeholders with the charge to "facilitate, initiate, or manage projects with the university, the city, or other public or private entities that are intended to maintain the university partnership district as a viable place to study, research, and live." Led by a 17-person steering committee composed of representatives of the four bordering neighborhoods (Cedar-Riverside, Marcy Holmes, Southeast Como, and Prospect Park), the U, the city, and three area business associations, the Alliance is off to an impressive start. Early accomplishments include the establishment of the University District Home Buyer Incentive Program, which offers qualified borrowers low-interest loans of up to \$10,000 toward the purchase of a home in the district; the loan is forgivable over five years if the buyer lives in the home. The coalition hopes to grow the program to help rebalance home ownership in the neighborhoods weighed down by student rental properties.

The Alliance also organized a series of workshops designed to bring the four neighborhoods together. At the first gathering, each group presented its revitalization efforts to the others. The second built on the first, says Gilyard, who chairs the Alliance's Vision Planning committee: "We asked them to come back and identify their most cherished assets, the missing pieces, and also the most transformative action they could take to help their

With their building campaigns and student-housing policies, universities can alter, for better or for worse, the character of entire neighborhoods. Which is why the Minnesota State Legislature commissioned an impact report in 2006 to learn what effects the U's new football stadium might have on the surrounding community.

neighborhood realize its own vision—and how the latter could contribute to the vision of the Alliance and the district." Local architecture firm Cuningham Group worked with each neighborhood to develop its idea for a transformational project.

This past summer, I attended an Alliance workshop on the future of the district that brought together a Who's Who of civic and thought leaders in Minnesota. Thomas Fisher, Assoc. AIA, dean of the U's College of Design, highlighted the opportunities afforded by the Central Corridor LRT to develop a socially, economically, and environmentally sustainable district. John Carmody of the U's Center for Sustainable Building Research profiled ultra-green neighborhood-scale developments in Colorado, the U.K., and Germany. Demographer Hazel Reinhardt outlined the dramatic impact that population aging will soon have on the district and the region, while researcher Mary Bujold charted housing and lifestyle trends and made the case for a much more aggressive campaign to spark economic growth in the area.

By midday I was brimming with hope that this initiative would yield a "national model for university-neighborhood collaboration," as city council member Diane Hofstede had put it. But the longtime area residents at my lunch table were less persuaded; their experiences had taught them to be wary. Will community interest combine with university expertise and resources to fuel a district renaissance? Or will the obstacles—complacency, fear of change, and a host of economic factors—be too much to overcome? Stay tuned.

an Hill

Christopher Hudson hudson@aia-mn.org

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Post It culls recent entries from AIA Minnesota's Threshold blog.

L.Architecture | MINNE-FORNIA Posted by Adam Regn Arvidson

the design musings of a native Minnesotan living in New York City.

Check out Threshold for weekly built-environment news and opinions, informal project features, and tie-ins with Architecture Minnesota content. New recurring blog topics include L.Architecture: The intersection of land and building; Mod Minn(ies), which highlights small-scale modern architecture in the region; and Transplanted.





The Speckman House in St. Paul is named for architect James Speckman, who was a Minnesota proponent of California Modernism. This 1958 house (one of the earliest examples of the style here in the Upper Midwest) has an open ground-level floor plan, big floor-to-ceiling windows, and wide roof overhangs. All of that is meant to bring the outdoors in, something that works quite well in California but is a tad trickier here in the frozen North.

Nevertheless, when Shane Coen and Stephanie Grotta of Coen + Partners got a hold of the house's landscape about four years ago, they made showcasing the architecture an imperative.... The site plan basically transforms a steep slope behind the house into a series of terraces: one with a pool, another with space for outdoor dining. The upper terrace is at the same elevation as the interior floor, which creates a strong visual link between indoors and out.

The outdoor spaces are wrapped by simple concrete walls and a 105-foot-long Cor-Ten steel wall that seems ready to vault out into the air as the backyard drops away. The surfaces are custom whiteconcrete pavers with embedded recycled glass. The plant palette is simple: a few preserved oaks, some masses of barberry, a couple rectilinear groupings of ornamental trees, and plenty of lawn....

This project is decidedly high end, but there are two basic principles here that anyone can use: Open up views to and from the house . . . and make the step from indoors to out as easy as possible (maybe even lose the steps entirely). [Owner John] Soranno [of Punch Pizza fame] . . . can't wait for his molded dining table to arrive from Europe so he can put it out on that upper terrace. The table, in true Punch style, is bright orange.

In Plain Sight | POTHOLES Posted by Brandon Stengel, Assoc. AIA

AIA ASSOC. (L) BRANDON STENGEL,





Slowly and quietly, the region's last glaciers melted away some 10,000 years ago. In most instances, they left behind the calm lakes and modest streams with which we are all familiar. But in a last great act of defiance, the glacier that created what is now the St. Croix River valley stomped several dozen goofy footprints, called

"potholes," in the land. As ice receded from the jagged outcroppings of the river gorge, glacial runoff often formed whirlpools that drilled downward though the rock below. Rocks and sediment swirling in these eddies acted like a scouring brush, carving smooth formations into the earth.

More than 80 of these funnels-the highest concentration anywhere on the planet-can be seen at Interstate State Park near Taylors Falls. Many are partially filled with years of sediment, but the park also boasts the world's largest excavated pothole as well. A few at a time, visitors can navigate the narrow steps down into the ominously named Bottomless Pit. In this case, "bottomless" means 60 feet deep, but it's still a humbling experience to stare up at the powerful forces that carved our home.

In Plain Sight | News | Great Debates | Out There... | Events | Transplanted | Architectural Pilgrimage | Mod Minn(ies) Design Experiments | In the Box | 45 Degrees North | Community Design | Treeline Podcasts | L.Architecture

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The U.S.S. Walter Mondale (2009) surfaces from the frozen lake.



One of five DICEHOUSES (2009), all of which housed table tops for game playing.

ART SHANTY PROJECTS

www.artshantyprojects.org

Medicine Lake, Plymouth; January 16-February 7

For seven years, Art Shanty Projects has been flipping the vernacular architecture of icehouses on its proverbial ear. The three-week winter spectacle on Medicine Lake in Plymouth features dozens of structures designed and constructed by Minnesota architects, designers, artists, and other creative types. But rather than serving as warming shelters for fishing through a hole in the ice, these shanties might house a post office, a karaoke club, theater performances, a science project, or a thought experiment on materials, design, and use.

It's a cul-de-sac, sculpture park, and social adventure on ice that "inspires creativity, exploration, and risk," says Art Shanty Projects director Caitlin Rae Hargarten. "Many of our shanty makers use salvaged and unconventional materials, which provide construction challenges and fundamentally produce incredible designs. Last year's Paper Shanty, for example, was just that: a functioning shelter made entirely out of paper that was able to withstand wind, snow, and rain while maintaining a fragile and illuminating quality." Last year's exhibition also included a Mobile Home Shanty, which visitors pedaled around on the ice. The Ice Cubicle, several years ago, displayed an office without walls. The program's now-annual call for shanty and performance proposals produces "a rich collection of interpretations on how we can create art anywhere, at any time—even in the dead of winter," says Hargarten.

"Past artists have hosted activities such as knitting, ice fishing, letter writing, bike riding, origami—you name it." she continues. "These types of interactions have become integral to the project and its growth. The project provides an opportunity for artists to interact and create with each other and the audience in an unintimidating, non-gallery environment. It takes the notion of ice fishing—typically a solitary activity—and turns it on its ear to create an engaging communitybuilding event for all to enjoy."

-Camille LeFevre

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Northrop Mall

Northrop Mall is considered the heart of the University of Minnesota's East Bank campus. Aside from being a primary pedestrian thoroughfare, it's also a well-used gathering space for everything from technology fairs to Hacky Sack circles. The result of a 1909 design competition won by famed architect Cass Gilbert, the final design of the mall, by landscape architects Morell & Nichols and architect Clarence H. Johnston, was actually built gradually through the 1960s. Why does it remain such a draw for students and campus visitors today? -Adam Regn Arvidson

Ever wonder what makes a great space great? In Why It Works. we demystify the design ideas behind well-loved locations.

Northrop Morrill Hall hoston Hal Walte Tate Lab of Physic librari

Smith Hall

Kolthoff Hall

A Simple Plan Northrop Mall is pretty basic: a long rectangle surrounded by buildings, with wide walkways around its perimeter and a few that cut through the middle. "That template was set so strongly in place that even with some modifications it still works," says Lance Neckar, head of the U's landscape architecture department. The modifications to which Neckar refers are changes in paving, the new Scholar's Walk that cuts through the middle, and the more contemporary architecture of Ford and Kolthoff halls. Because the designers created a simple template-gaps between buildings equal to building cornice heights, clearly defined building and sidewalk lines-Northrop holds together as one composition, one place.



Variety Within the Plan Five panes of lawn, uniform building heights, formal hedges-it could all get a little boring. But Northrop differs from other venerable malls such as those in Washington, DC, and at the University of Virginia. Because the existing trees were allowed, as Neckar puts it, to "wander out into the space." each green square is a little different. The auditorium end enjoys full sun, the oaks near Kolthoff Hall create almost impenetrable shade, and the stately elms in front of Vincent Hall cast filtered shadows on the grass. Likewise each building is a little different, and even the perimeter walks offer varied experiences.

such document related to the university. The survey was needed because the area used to be a neighborhood, and the designers wanted to preserve the ancient oaks and elms that still stand in the mall today. The walkways, drainage, and building floors were designed to do two things: address the existing landscape and create a uniform greensward that still shed water. "It's a classic example," says Neckar, "of topographic control in relationship with vegetation and structure."



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OPENING DOORS

The Minnesota Architectural Foundation fosters diversity in the profession with its Clarence W. Wigington Scholarship



34 years.

An Architectural Legacy in Ice and Stone, David Vassar Taylor writes the following about architect Clarence W. "Cap" Wigington: "During a period of great social change in American history, he labored, as both a professional and a private citizen, to build bridges across the divide that separated races." The first registered African American architect in

In his book Cap Wigington:

Minnesota and the first African American municipal architect in the nation, Wigington designed multiple

private residences, six St. Paul Winter Carnival ice palaces, and numerous schools, as well as three structures listed on the National Register of Historic Places: the Highland Park Water Tower (1928), the Holman Airfield Administration Building (1939), and the Harriet Island Pavilion (1941), later renamed the Clarence W. Wigington Pavilion.

It's fitting, then, that the Minnesota Architectural Foundation (MAF) created a scholarship in his honor, in 1992. Originally named the Minority Architectural Scholarship, the Clarence W. Wigington Scholarship provides tuition assistance to minority students who wish to pursue a professional education in architecture at the University of Minnesota. "There is a lack of diversity in the field," says Urban Design Perspectives principal Alicia Belton, AIA, a past MAF



Citizen Architect profiles architects and designers who have taken on leadership roles in their communities.

president who chairs the foundation's Wigington committee. "We needed to create a pathway into the profession for those students who hold promise for succeeding in an architectural career."

Since its inception, the scholarship has been awarded to several aspiring architects: Keon Blasingame, Pauv Thouk, Assoc. AIA, Jon Jacobs, and Max Schmitz. Blasingame and Thouk, the first two recipients, have since completed Master of Architecture degrees at the U and now hold positions with KKE Architects and Julie Snow Architects, respectively.

"I am very thankful for the scholarship," says Thouk. "It has opened doors I had never imagined." She now serves on the Wigington committee in hopes that she can make a difference in the lives of recent and future recipients. "Having the support and encouragement of the MAF board members was a huge help," Thouk says. "Knowing how stressful and demanding the architectural program can be, I want to provide that same support to Max and Jon, and I hope that after they graduate they do the same thing. It's all about helping people along."

The volunteer-run Minnesota Architectural Foundation, created "to provide advocacy and capital for the advancement of architecture in Minnesota," also supports the Thomas F. Ellerbe Scholarship, the Rapson Traveling/Study Fellowship, and the Beverly Hauschild-Baron Leadership Fund. For more information on its programs, scholarship recipients, and contributors, visit www.aia-mn.org/foundation.

–Ann Kohler

Through mentoring and tuition support, the Minnesota Architectural Foundation's Clarence W. Wigington Scholarship has helped aspiring architects like Keon Blasingame, Jon Jacobs, and Pauv Thouk, Assoc. AIA (pictured left to right with MAF past president Alicia Belton), succeed. Sustainable design is an environmentally responsible way to help lower the carbon footprint of homes in the environment and the community. With increasing concerns regarding climate change, energy usage, indoor air quality and emissions, engaging an AIA Architect is critical.

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The Embassy Medical Center in Colombo, Sri Lanka, will, when completed, achieve energy self-reliance and improve quality of life for the entire city through regenerative design.

*** * ***

COMMUNITY

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Talkin' 'Bout a Revolution

Synthesis is a series of articles by Doug Pierce, AIA, and other green architects and activists that pull together the various

elements of sustainability.

CLEAN WATER AND RENEWABLE ENERGY

Biogas powers the hospital, with the excess used as fuel for the vehicles that transport the organic waste and sewage. Potable water, processed with renewable energy, is transported back to the latrines for drinking and bathing.

In Sri Lanka, a groundbreaking hospital project embraces **regenerative design**, an approach that far exceeds sustainability

By Doug Pierce, AIA

History is an outstanding teacher; by looking to the past, we can learn "new" ways to live that are difficult to see in the present. Consider that anthropologists and historians have recently shown how several ancient civilizations used renewable resources to elegantly balance a wide array of interspecies relationships, human artifacts, and resource flows. Native Americans, for example, learned to refrain from basic resource depletion—over-hunting—and maintain relative ecological balance. For centuries Burmese monks managed a sophisticated water system that sustained Burmese society until that system collapsed under the weight of modern, petroleum-based agriculture.

Today, social entrepreneurs and leadingedge designers from around the globe are drawing on these historical precedents to develop a new paradigm for the way we craft our world: regenerative design. If the concept sounds revolutionary, that's because it is. Whereas sustainable design seeks to minimize environmental harm, regenerative design aims to create systems that generate more resources and ecological vitality than they exploit. At this critical juncture in human history, with the status quo leading us down an increasingly dangerous path, regenerative design may be the only way that we can effectively address the accelerating problems of poverty, global warming, and ecological degradation.

My colleagues at Perkins+Will and I have had the opportunity to explore the potential in regenerative design in the small island nation of Sri Lanka a beautiful country with warm and welcoming people. The island was drawn into the global economy long ago via European colonization, which led to the conversion of much of the land to export plantations for growing tea and resulted in the marginalization of large sectors of the Sri Lankan population. Today, well over a half-million people live in slums around the capital city of Colombo. Most lack basic sanitation and clean waterthe number one source of disease worldwide. The air is fouled by open burning in large waste dumps and by a transportation fleet of threewheeled, fossil-fuel-powered tuk-tuks (auto rickshaws) that spew thick, heavy exhaust.

In 2008 our office teamed with a group of Sri Lankan social entrepreneurs to design a modern children's hospital, Embassy Medical Center (see profile in the November/December 2008 issue of Architecture Minnesota), in Colombo. With an infusion of regenerative-design thinking, our mission blossomed into creating a building complex that would serve as a social, environmental, and economic engine for the city. The hospital is now intended to help elevate quality of life for the city's one million residents by serving as an efficient, modern healthcare provider and educator and an economic incubator, all while cleaning up the city's air and water using locally sourced renewable energy. This goal is ambitious, but it can be achieved.

>> continued on page 46

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- in multi-shades are produced with 100% pre-consumer recycled material.
- are manufactured with shales and fireclays mined in Northeastern Ohio near Alliance, Ohio and within a 500-mile radius of many major metropolitan areas.



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HALLOWED HALLS

Why do new and newly renovated university buildings seem to capture our attention more than, say, new corporate projects do? Perhaps the leading explanation is that many colleges and universities boast historic or architecturally adventurous campuses that have come to define their distinctive brands, and so the latest addition to the quad naturally piques our interest. Does the new student union blend into its notable surroundings or stand apart? Does it aim to echo the past or make a sharp break toward the future? Inquiring minds want to know.

Another reason for our heightened curiosity is that college buildings are intensely public, touching more people and having more impact than many other building types. Even those of us who aren't students or faculty may have occasion to walk the halls, and if we don't, we can at least imagine the kind of energy they channel. Design enthusiasts who followed the early phases of a particularly successful project will marvel at how the school and its architects fulfilled the complex task of designing for multiple-constituency user groups-in many cases reaching out to and collaborating with surrounding communities. The considerable challenges posed by these communal buildings make the best outcomes all the more compelling.

Trends, too, can be fascinating. Student housing, for example, is growing ever more luxurious and home-like, defying monastic models of old. New student recreation facilities are now such an essential student recruitment draw that colleges engage in virtual arms races to keep up. Shiny new buildings are at the fore of institutional hype, carrying major bragging rights, while additions, renovations, and historic rehabilitations preserve the character of a campus and allow architects to collaborate with their long-dead forebears. I myself had the good fortune to participate in the renovation of the University of Minnesota's historic Walter Library, and I fondly recall specification language, written by architect Clarence Johnston in 1922, for the building's polychrome, coffered plaster ceilings: "All miters shall be perfect."

The five projects featured in the following pages—from the highly sustainable and forward-looking Ford Hall at Minnesota State University, Mankato, to the exterior restoration of the University of Minnesota's historic Folwell Hall—share many of the elements that make collegiate architecture so captivating. (The same can be said of the University of Minnesota's new TCF Bank Stadium, featured on page 40.) In so doing, these buildings enhance their respective campuses and reward their broader communities.

-BILL BEYER, FAIA

EURE URE

BY AMY GOETZMAN

At Minnesota State University, Mankato, leading-edge design powers a new science building and energizes its students



It's 10 o'clock on a Saturday night. Parents, do you know where your college students are? If we're talking about science students at Minnesota State University, Mankato, chances are good that they're hanging out in the science building, studying.

No, seriously.

This past fall, MSU-Mankato opened the new Leonard A. Ford Hall addition to the Trafton Science Center. The three-story, 67,000-square-foot expansion makes Trafton the largest building on campus and in the MnSCU system. It's a dramatic example of green technology in action. Its mindful design reflects the beauty and complexity of the learning activities it facilitates. But what's most notable about this project is the way it attracts students, who use it after classes and after hours as a study space, a gathering place, and a center of campus life.

"What's more important in a college building: interactions between students and faculty, or interactions between faculty members?" asks HGA's Bill Blanski, AIA, the project's lead designer. "Neither. It's student-to-student interactions. How they interact with each other and how they learn from each other is really what transforms their college experience. This building is designed to revolutionize the camaraderie that occurs in learning environments."

That camaraderie isn't isolated in a student lounge. In fact, says Blanski, the concept of a lounge is increasingly obsolete in academic design. "The word *lounge* doesn't go together with teaching and learning. And yet a place to gather or stop with your laptop and get out of the traffic—the typical things you'd want to do in a lounge—still happens here."

These interactions occur in captured and found spaces throughout the building, such as in seating tucked into the end of sun-soaked hallways, or in the "elbow" of the building, the place where the new addition meets the brick wall of the old building. Here, a balcony linking the two structures becomes a meeting place for students.

ONWARD AND UPWARD

The \$19 million building makes MSU-Mankato's growing emphasis on science and technology visible. "It was time to expand Trafton to meet our future needs," says John Frey, retired dean of the College of Science, Engineering and Technology.





To conserve space, intentional lounge areas were left out. Instead, "found spaces" at intersection points in the building make lively gathering spots.

The Brutalist design of the original science building loosens up in the expansion with a playful window arrangement and a warm acknowledgment of the natural world. The building welcomes and uses natural light, and the landscaping—a geometric arrangement of native plants and rocks—is a nod to the earth sciences studied inside.



What's most notable about the building is the way it attracts students, who use it after classes and after hours as a study space, a gathering place, and a center of campus life.



A \$1 million investment in exhaust-fan technology saves the building so much money in heating and cooling costs that it will pay for itself in about five years.

"We simply needed more space for science and engineering. Compared to our peer institutions, we had significantly fewer square feet per faculty per student. Our building was 30 years old and needed repairs. And we really needed to be more energy-conscious and demonstrate how effective new technologies can be in building systems."

That third point is not just the sound reasoning of a scientist; it's a new mandate of the State of Minnesota. As of 2008, all new buildings or renovations of state-owned entities must meet the Buildings, Benchmarks and Beyond (B3) guidelines for sustainable building and energy practices. HGA helped develop these guidelines, creating case studies that showcase smart design and systems to demonstrate resource savings. In this building, the firm put those concepts into action.

"Chemistry and biology are very wet sciences, and there is a critical need to have good air exhaust, especially in the labs, where students are working with fumes," says Frey. A sophisticated exhaust system draws that air out of the building, which means it's also drawing out heat or air-conditioning. But on the roof of the building a series of giant fans that function as heat exchangers draws out the old air and then recaptures the heated or cooled air and passes it back into the building. This technology is so effective that the \$1 million price tag will be offset in less than five years by lower utility bills.

Blanski says other green measures were programmed into the design through building orientation and window positioning. Since contemporary classrooms are screen-intensive, sunlit classrooms would require constant shading. So the classrooms are interior, while natural light floods the corridors that line the building's exterior, energizing students as they flow from classroom to lab to gathering place, and filtering into interior spaces through high transom windows. "Daylight

>> continued on page 51

A sun-soaked passageway (opposite) energizes students and staff as they move through the building. But inside the classrooms (below), sunlight doesn't interfere with screen-based learning. Transom windows draw just enough light in from the outside. State-ofthe-art air-venting technology maintains clean indoor air in the lab environment.



Research labs and classrooms Circulation and gathering spaces

Faculty/student support

Building support Existing building

22

LEONARD A. FORD HALL ADDITION

Location: Mankato, Minnesota

Client: Minnesota State University, Mankato

Architect: HGA Architects and Engineers www.hga.com

Principal-in-charge: Rebecca Greco, AIA

Project lead designer: Bill Blanski, AIA

Energy modeling: The Weidt Group twgi.com

Landscape architect: HGA Architects and Engineers

General contractor: Shaw-Lundquist Associates

Size: 67,000 square feet

Cost: \$19 million

Completion date: September 2008

Photographer: Paul Crosby









MAIN S Perkins+Will goes to

town on a has-it-all student center at the University of Wisconsin-Stevens Point

By Nancy A. Miller

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MIX



CHRIS BARRETT, HEDRICH BLESSING

CHRIS BARRETT, HEDRICH BLESSING



Perkins+Will's expansion and remodeling of the Dreyfus University Center transformed and reoriented the building to make it a thoroughfare for the University of Wisconsin-Stevens Point campus and a focal point for the entire community.

The addition's two-story central corridor (left) functions as a main street through the building and through campus. In addition to a bookstore, a movie theater, a nightclub, computer labs, a copy center, a bank, and a hair salon, the Dreyfus University Center houses the campus' main dining hall (right) and an art gallery (below).

MANDA CARRIVEAL

PAUL NEUHAUS, AIA



CHRIS BARRETT, HEDRICH BLESSING

"I WOULD DESCRIBE IT ALMOST AS A TOWN WITHIN A BUILDING,"

says Perkins+Will architect Paul Neuhaus, AIA, of the expanded and remodeled Dreyfus University Center at the University of Wisconsin-Stevens Point. It's an apt encapsulation of a building that houses a dining hall, a bookstore, a banquet hall, a movie theater, a nightclub, computer labs, a copy center, meeting rooms, a bank, a hair salon, and other facilities used year-round by not only students but also the entire Stevens Point community. "If there is one building on campus where community happens most," adds Neuhaus, "it is the Dreyfus Center."

"One of the goals we had," says Dreyfus University Center assistant director Susan Crotteau, "was to make the center a place where students *want* to be, not just a place they *have* to be." To this end, the Perkins+Will design team opened up the existing boxy building with a dynamic two-story addition centered on a 200-footlong concourse that Neuhaus refers to as "main street." Now, a dramatic glazed entrance at the northwest corner of the building "serves as a beacon to welcome people into the building," says Crotteau. And the soaring concourse, lined with stairs, lounges, and many of the aforementioned amenities, has the energy of an urban street. "The Dreyfus Center is a place you can pass through on your way across campus," says Neuhaus. "It's natural to move through the building as if it were a street."

"DREYFUS CENTER IS A PLACE YOU CAN PASS THROUGH ...





CHRIS BARRETT, HEDRICH BLESSING

DREYFUS UNIVERSITY CENTER ADDITION AND REMODEL

Location: Stevens Point, Wisconsin

Client: University of Wisconsin-Stevens Point

Architect: Perkins+Will www.perkinswill.com

Principal-in-charge: Jeff Ziebarth, AIA

Project lead designer: Paul Neuhaus, AIA

Associate architect: SDS Architects www.sdsarch.com Landscape architect: Melchert Walkky www.rlmelchert.com

Construction manager: Miron Construction

Size: 192.000 square feet (addition: 43,000; major renovation: 100,000; minor remodel: 49,000)

Cost: \$21,150,000

Completion date: November 2007

Dreyfus University Center assistant director Susan Crotteau describes the building's new entrance (left) as "a beacon to welcome people into the building."

Adding to the drama is the concourse's unusual split-level section. Neuhaus explains that the original building placed the bookstore four feet below ground, with a second story above. Rather than copy that section in the addition, Perkins+Will designed the new portion of the building on ground and above. Thus, says Neuhaus. "You access the various spaces via a series of stairs that ascend from the bookstore up to the main level, then on up to the almost-second level, from which you can cross over on a ramp to the second level. The two-story space of the main street allows you to experience all of these levels at the same time."

"Spaces like this not only give you access to all the amenities and things going on," he continues. "They also create a sense of community, because, even if you don't interact with everyone, the fact that you can see all of the activity from one spot gives you a sense of belonging."

Other elements of the design brought the existing building's activities into view as well. The bookstore, for example, had long been out of sight in its subterranean location. "So what we did," Neuhaus explains, "was plan a series of lounges along the edge of the main street that are low, compressed spaces, but the whole wall along the lounge allows you to look into the bookstore." Similarly, new second-story meeting rooms are framed to open onto the main street in a way that "creates a stage set of those rooms for people outside," he adds.

No less captivating are the materials, which were selected in response to the university's request that the center have a strong Stevens Point identity. "We took what we were hearing from different people

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TO MOVE THROUGH THE BUILDING AS IF

IT'S NATURAL

BARRETT, HEDRICH BLESSING

IT WERE A STREET."





PAUL NEUHAUS, AIA

The main street is enlivened through physical connections across levels (left) and by visual connections. Activities in meeting rooms (above), the bookstore, and other spaces can be viewed from the central corridor.



A campus icon since 1907, Folwell Hall projects an academic image with its Jacobean-style brick chimneys and terra-cotta ornament. A \$15 million restoration saved the crumbling exterior. FOLWELL HALL EXTERIOR RESTORATION Location:

Minneapolis, Minnesota

University of Minnesota

Architect: Miller Dunwiddie Architecture, Inc. www.millerdunwiddie.com

Principal-in-charge: John D. Mecum, AIA Associate architect: Studio Five Architects www.studiofivearch.com

Landscape architect: Damon Farber Associates www.damonfarber.com



General contractor: McGough Companies **Completion date:**

August 2008

Photographer:

Gallop Studios

Size: 111,484 gross square feet

Cost: \$11.8 million



Above: One of Folwell's four mysterious sea-serpent gargoyles, which were recast. Right: The iconic west stairway was rebuilt.

Miller Dunwiddie Architecture aces an exterior restoration of the University of Minnesota's century-old Folwell Hall

If you don't believe buildings speak, look closely at Folwell Hall, the Jacobean structure that stretches along University Avenue on the University of Minnesota's East Bank campus. Its size alone – 94 by 340 feet – creates a sense of gravitas. Its imposing granite stairway leads to a marble-lined hallway of classrooms, offices, and two fireplace-studded conference rooms. And along its impressive roofline, English-style brick chimneys and terra-cotta pediments, cartouches, and a frieze sporting satyrs, goats, and empty knights' helmets hint at the ancient roots of the humanities. The message: Those who study here are part of a long and hoary tradition.

Built in 1907, Folwell Hall was designed by the prolific Clarence Johnston, who served as state architect for 30 years. It's the U's largest classroom building and, like Northrop Auditorium, an architectural icon. But after a century of freeze-thaw cycles, the roof, masonry, and terra-cotta were decaying. "We did a forensic study in 2004 and found issues on the exterior that needed to be fixed," says Kathy O'Brien, vice president for University Services. Adds Miller Dunwiddie Architecture project manager Denita Lemmon, AIA: "The envelope needed to be watertight." The building's size made the hefty renovation budget a challenge for legislative funding, so the U broke the project into exterior and interior phases and funded the \$15 million exterior stabilization up front. Miller Dunwiddie was selected to do both phases. "That was definitely a benefit," says Lemmon, "because we could look at the building as a whole and what it will need when we start on the inside." For instance, some of the 28 chimneys were removed and rebuilt to create more space in the attic for air handling. "We did as much structural renovation as we could while everything was off the roof," notes Lemmon. (The building remained in use while it was fully scaffolded.)

The renovation was thoroughgoing. All the original Ludowici roof tiles were removed and replaced with identical new 100-year tiles. The roof diaphragm was reinforced, waterproofed, and insulated, the granite foundation spiffed up, and the three granite stairways rebuilt. The brick walls were tuck-pointed, cleaned, and repaired using bricks borrowed from the chimneys when needed. And the more than 7,000 pieces of terra-cotta were surveyed, repaired in place if they could be, and otherwise replaced with new ones made by Boston Valley Terra Cotta in upstate New York, one of only two terra-cotta companies left in the U.S.

One task was more fun than painstaking: recreating the four sea-serpent gargoyles that originally topped the building. "Historic photos

>> continued on page 52



"WE PERCEIVED THE BUILDING AS PART OF THE HENNEPIN **AVENUE STREET SCENE AND DESIGNED FROM THAT.**"

BY NANCY A. MILLER

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TRADUCTO

On a recent weekday afternoon, as Hennepin Avenue filled with rush-hour traffic, the Minneapolis Community & Technical College Science Building teemed with its own lively traffic. In three stories of lounges that face the street, students gathered to study, talk, and prepare for class. Connected through a transparent glazed facade, the activities of street and building complement and enliven one another. "We perceived the building as part of the Hennepin Avenue street scene and designed from that," says Architectural Alliance design principal Tom DeAngelo, FAIA. "We thought the building should embrace the kinetic feel of Hennepin Avenue."

The Science Building, which houses classrooms, labs, and faculty offices, is the latest addition to the Minneapolis Community & Technical College (MCTC) campus, which in recent years has been expanded and reoriented from Loring Park to Hennepin Avenue. In 2004, MCTC acquired the complex of buildings on the 1300 block of Hennepin that had been occupied by Billy Graham Ministries. "We realized immediately that this would be a great location for the college's growing science and allied health programs," says MCTC president Phil Davis. Most prominent among the several buildings and additions that had accreted on the block over decades was

MINNEAPOLIS COMMUNITY & TECHNICAL COLLEGE HEALTH SCIENCES RENOVATION

Location:

Minneapolis, Minnesota

Client:

Minneapolis Community & Technical College/MnSCU www.minneapolis.edu

Architect: Architectural Alliance

www.archalliance.com Managing principal:

Peter Vesterholt, AIA

Design principal: Tom DeAngelo, FAIA

Energy modeling: The Weidt Group twgi.com Landscape architect: Close Landscape Architecture+ www.closelandarch.com

General contractor: CM Construction

Size: 86,000 square feet

Cost: \$15,553,619

Completion date: November 2008

Photographer: Paul Crosby

Architectural Alliance transformed an existing threestory brick building and its one-story addition by opening up the Hennepin Avenue façade with a new glazed curtain wall (right). Inside, open, light-filled lounges enjoy expansive views of the street and the city beyond.





THE SCIENCE BUILDING'S STAINLESS-STEEL-AND-GLASS CURTAIN WALL AND POLISHED BLACK GRANITE ECHO WHITNEY HALL, WHILE THE COLOR OF THE CLAY-TILE FAÇADE RECALLS THAT OF THE IRON-SPOT BRICK OF THE TECHNICAL BUILDING, THE CAMPUS' CENTRAL STRUCTURE. A landscaped path (opposite) softens the pedestrian experience along busy Hennepin Avenue. Red and blue Venetian-plaster walls (below) offer a striking counterpoint to the glazed walls in the corridors and lobbies that face Hennepin.



- A Wheelock Whitney Hall, Bowman Hall, Kopp Hall
- B Technical Building
- C Management Education Center
- D Helland Center, Whitney Fine Arts, Wells Center



a three-story former auto showroom at the corner of Hennepin Avenue and 13th Street. That building and a one-story warehouse addition to the west constitute the core of what Architectural Alliance transformed into the Science Building.

Architectural Alliance project designer Marcelo Pinto, AIA, says the building was "structurally sound, but there was not a lot to save." So the decision was made to strip it down to its bones and recycle many of the discarded materials—an approach that Davis cites as "an architecturally and environmentally good choice." Rather than re-clad the uninsulated brick building, the design team cut new openings and applied a ventilated façade, or rain-screen system, of bronze-colored clay tiles (insulation was added between the tiles and the brick). The subtle reflectivity and iridescence of the tiles, applied with both flat and fluted surfaces, creates a striking effect along Hennepin Avenue—and puts the building in conversation with the rest of the expanded campus.

Davis explains that the college wanted the Science Building to pick up on, but not copy, the material cues of Wheelock Whitney Hall, opened in 2002 at the west end of campus, and other MCTC buildings; in this way it would "signal your arrival on campus." The Science Building's stainless-steel-and-glass curtain wall and polished black granite echo Whitney Hall, while the color of the clay-tile façade recalls that of the iron-spot brick of the Technical Building, the campus' central structure.

But the building also establishes its own complex presence with elements layered to mediate its connection to Hennepin Avenue. The architects removed one bay of the building's one-story section, for example, to pull the building back from the street and create room for what is now a popular green space and plaza. On the interior, the space that stretches along the first floor of the glazed three-story section is lined with a dark terrazzo floor and a dark-blue Venetian-plaster wall, to mute the building's transparency from the street. (A blue Venetian-plaster wall also backs the second- and third-floor lounges.) The result is a visually dynamic public space that enjoys visibility without being overexposed—perfect for students who want to work, socialize, see, and be seen. And a perfect fit on a busy and eclectic urban avenue. **AMN**



Building Community





Each of the rooms in the coed Julia A. Sears Residence Hall boasts a 10-foot-high ceiling, which allows students to sit upright in their beds without bumping their heads.







The Julia A. Sears Residence Hall includes a number of community amenities, including the full-service 1872 Grill and adjacent convenience store.



JULIA A. SEARS RESIDENCE HALL

Location: Mankato, Minnesota

Client: Minnesota State

University, Mankato

Architect: Bentz/Thompson/Rietow with Ayers Saint Gross www.btr-architects.com www.asg-architects.com

Principal-in-charge: Ann Voda, AIA, Bentz/

Thompson/Rietow Project designer:

twgi.com

J. Eric Moss, AIA, Ayers Saint Gross

Energy modeling: The Weidt Group

Landscape architect: Damon Farber Associates www.damonfarber.com General contractor: Knutson Construction

Size: 150,200 square feet: 602 beds

Cost: \$24 million

Completion date: July 2008

Photographer: Philip Prowse

A new residence hall at Minnesota State University, Mankato, offers students ample opportunities to connect

Located on the western edge of the MSU-Mankato campus, with sweeping views of the bluffs surrounding the Minnesota River valley on one side and the campus mall on the other, the new Julia A. Sears Residence Hall boasts an ideal setting for college living. Designed by Bentz/Thompson/Rietow of Minneapolis with Ayers Saint Gross of Baltimore, the 150,000square-foot facility is the first of its kind at the university.

"Through a housing assessment, university leaders had identified that the standard double-loaded corridors with gang showers were not up to par with the new age of students," says Bentz/Thompson/Rietow president Ann Voda, AIA. To bring the university's offerings into the 21st century, the architects designed Julia A. Sears Residence Hall to include semi-suites of two separate bedrooms adjoined by a shared bath. "The idea," Voda continues, "was to create a mix of units that were not only marketable but would also provide the students with a sense of community that would then support them in their academic careers."

That notion of community turned out to be the project's key building block. "We wanted the process to start with the student and his or her roommate, and build the community up from there," says Cindy Janney, director of Residential Life at the university. "Each student has his or her roommate, and then their suite mates. From there, they are all bound by their floor, and then by their respective wing. Students become a member of the university community by their spot in the dorm." The first phase of a two-phase plan to replace Gage Residence Community, Julia A. Sears Residence Hall officially opened its doors in August 2008. It houses 602 of the university's 3,000 student residents.

Each bedroom features 10-foot ceilings, tile floors, and sound-resistant walls and comes fully equipped with loftable beds, dressers and desks with lockable drawers, upholstered desk chairs (which can easily be converted into gaming chairs) and accompanying rolling tables, open closets, and enough electrical outlets to power the numerous gadgets today's student requires. Terrazzo tile floors, maple doors and cabinetry, and bold paint colors warm the common spaces, which include a kitchen and an adjacent lounge for each of the hall's 15 communities; seven laundry rooms; an open community room that can be divided with glass partitions; a convenience store; and a full-service grill, which serves everything from burgers to cappuccinos. Low-E coated glass, additional roof insulation, low-flow shower heads, and high-efficiency fan motors make the Julia A. Sears Residence Hall 30 percent more efficient than is required by Minnesota energy code.

Outside, two acres of open lawns, curving walkways, and cobblestone patios dotted with purple benches (purple is the school's signature color) flow gracefully from the brick and Kasota-stone building. "The relationship between the inside and outside guided many of the decisions during the design process," says Voda.

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Ignacio San Martin, the new director of the University of Minnesota's Metropolitan Design Center, unravels a little of the complex science of cities in an interview with Architecture Minnesota editor Christopher Hudson

PHOTOGRAPHY BY DON F. WONG

since he took the helm of the University of Minnesota's Metropolitan Design Center in January 2009. The curly-haired urban designer, whose long résumé includes, most recently, an architecture professorship and directorship of an urban design laboratory at the University of Arizona, wears a variety of hats at the U, while continuing to immerse himself in the urban patterns and conditions of the Twin Cities metropolitan area. As Design Center director and chair of the U's urban design program, San Martin teaches, lectures widely, organizes symposia, and leads a McKnight-funded program that provides communities and nonprofits with direct design assistance. An example of the latter work is on display at the center: A model and numerous renderings show a sleek West Bank LRT station whose urban design is far more ambitious than what is currently planned for that stop on the Central Corridor line.

Ignacio San Martin has been a busy man

To all of these roles, San Martin brings immense charm, a broad view of the challenges we face in making our cities more vibrant and sustainable, and because he's new to our region a fresh pair of eyes. He's equal parts poet, scientist, and historian, and he doesn't hold his tongue, as you'll see in this interview. Who knew urbanism could be such a rousing topic?



At AIA Minnesota's Town Hall Forum this past spring, you relayed a wonderful anecdote about a high and a low you experienced on one of your first days here in Minneapolis, at the Walker Art Center. Will you share it with our readers? It was a Saturday—one of those 15-below days—so I decided to visit the Walker as a refuge from the cold. To my surprise, the entire first floor of the Walker was full of children working in groups, talking, measuring, and cutting paper to build some sort of construct. Others were ignoring the activity—and their parents—but happily sitting together and concentrating on book reading. It wasn't so much the nature of the activity that struck me but the degree of freedom and depth of total concentration that these children were having. I was filled with this feeling of knowing that I was in the right place—that my decision to come to Minnesota was indeed correct. I was experiencing the passion that Minnesotans have for early childhood education, which is well known across the country.

So after a few hours of watching and photographing this scene, I started exploring the Herzog & de Meuron building, which led me to an upper-floor room with this large oblique window. Again to my surprise, I had in front of me this atrocious and violent landscape of infrastructure, the so-called freewayscape barely circumventing but distorting and tilting the proper space of St. Mark's Cathedral. I half-expected that the building would admit defeat and surrender to



the next round of freeway "improvements."

The experience is still with me because it revealed without ambiguity the coexistence of two separate and incompatible realities. Meaning that the impacts of the physical landscape of mobility that we are building are oblivious to, and of a very different nature from, our cultural and intellectual aspirations.

During the same talk, you made another simple but memorable observation: that we understand a city with our feet. Elaborate on that idea.

You're picking up on comments that are very important. It has to do with what I called the "materiality of the city"—not only the diversity of materials but also the material history of the

city. Learning to read this landscape with our feet provides a better guiding compass than do our eyes. The ground on which we walk is full of history, and the paving materials we choose to contact our bodies are critical. Material selections make us move into different time frames and space memories. They even make us move through space at different speeds. Minneapolis welcomes us to experience the city via two dominant materials: concrete and sod grasses.

On the two occasions I've heard you speak, and now again in this interview, I've been struck by the lyricism you bring to discussions of urban design. You get your audiences to ruminate on larger "cultural and intellectual aspirations," as you put it earlier. Which prompts me to ask you: When we think about how to improve quality of life in our

cities, should we dream big? Or should we instead set our sights on one small problem at a time? It's much better to think right than to think big. History reminds us that this search for quality of life—a term coined in the 1960s—has been with us since antiquity. Essentially it means being able to be a citizen in a city of great social vitality, in a physical environment that supports a creative existence and provides a great diversity of choices and experiences.



Throughout the Renaissance, cities competed with each other not only to provide better safety but also because they thought that *the beauty of the city should reflect the city's civic status as a place inhabited by virtuous citizens*. Cultural geographers, who are very perceptive students of the built landscape, remind us that if we want to know who we are we should glance at the built landscape that surrounds us. This relates to my dissociated and contradictory experience at the Walker that winter day.

Do the concepts of livability and sustainability mean the same thing to you? Or are they different

concepts that overlap? No, at present I think that it's important to separate the concept of quality of life (which has many perspectives) from the concept of sustainability. Although both, in different ways, reflect the hope of transforming the city over time as a great place to work and live.

Over the past 50 years, most American cities have gone through a period of significant transformation to provide better quality of life for their residents. But we have done so by consuming extraordinarily large amounts of resources and disposing of extraordinarily large amounts of waste. Each of us in the U.S. consumes about 10 hectares (approximately 25 acres) of land to do what we do; that's about double what Europeans consume and 50 times more than what most of the world population consumes. So our quality of life in the U.S. is very unsustainable. We need a new set of quality-of-life objectives and indicators whose measurable outcomes are built on a less selfish and myopic understanding of quality of life.

Our challenge is to search for a more sustainable lifestyle—a quality of life that flows from living smarter, using fewer resources and disposing of less waste, and relying less on acquiring personal wealth in exchange for a more satisfactory collective and planetary well-being. Our combined efforts to achieve these goals can transform the Twin Cities into a landscape that is best suited to the aspirations of our society. Perhaps we could experience an inspiring cultural output from resolving with creativity and beauty some of the complex urban problems we face. The benefit of moving in this direction—of embracing this culture of innovation—will be to create a quality of life that attracts brilliant professionals and artists who in turn will work in different areas of endeavor.

One of the best things we have going here in the Twin Cities is, as you know, a vast, world-class park system. It's awe-inspiring to think of the broad vision and foresight and commitment that went into preserving these outdoor spaces for generations upon generations of Minnesotans. How do we get that ethic back-that willingness to invest in quality of life not just for ourselves and our children but for people who will live here long after we're gone? You're absolutely right. We are a living history of the far-reaching consequences of a kind of thinking brought to us by a very dedicated group of social reformers. I think that the spirit is still very much here, but we seem to be suffering from the malady of electing political leaders with a serious case of poor social commitment and historical amnesia. Why should we keep investing in fixing I-35W when it makes no

TRANSIT TRANSFORMATION

San Martin and his research fellows are in the midst of a multiagency process to re-envision the West Bank light-rail transit station on the new University Avenue line. San Martin thinks current road rerouting and station plans would negatively affect both the Seven Corners and Cedar Riverside entertainment districts and would also isolate the planned station on Washington Avenue between the two. The MDC's concept would establish that station as the core of both districts: a lively transit hub with a contemporary design.

– Adam Regn Arvidson www.design.umn.edu/about/news/ emerging/fall_2009/mdc.html

amnesia. Why should we keep investing in fixing I-35W when it makes no real progressive sense? We don't build walls around cities anymore, but in Minneapolis we seem to be erecting tall walls around neighborhoods. We keep forgetting that the main paradigm is about moving people, not cars.

A Minnesota winter is a good time to bury oneself in a pile of good books. What are your favorite books on cities and urban design? I will recommend Sir Peter Hall's Cities in Civilization (1998), which I think goes well with the nature of your questions. As for my favorite books on urban design, there are only too many. Michael Hough' Cities and Natural Process (second edition, 2004), which also goes well with our discussion, comes to mind. I am currently enjoying Michel Serres' The Five Senses (2009), having just finished Sue Roe's The Private Lives of the Impressionists (2007), which was quite good reading. Art critic Robert Hughes' Nothing If Not Critical (1990) relates very well to Roe's book. AMN





The sporty new Gopher football stadium has it all: an intimate bowl, a smashing downtown view, a collegiate exterior, a giant scoreboard, and 918 signature M's.

BY LINDA MACK BRAND NEW [GAME] DAY



To design the University of Minnesota TCF Bank Stadium, it took a well-orchestrated effort of 26 architects from Populous (formerly HOK Sport Venue Event) of Kansas City, a dozen architects and interior designers from Architectural Alliance, and six from Studio Hive, plus 20 consulting firms. What did this seamless team create? A fanfriendly sports venue that fosters community on campus.

That was the University of Minnesota's goal with the \$303 million stadium project that brought the football team back from a 27-year exile at the Metrodome. Says Brian Swanson, the U's stadium project coordinator: "We talked at the state

THE NEW TCF BANK STADIUM RE-ENERGIZES THE UNIVERSITY OF MINNESOTA CAMPUS

legislature about a 50,000-seat open-air stadium with a horseshoe shape and a traditional collegiate feel. It was more of a populist notion. We wanted it to say 'Minnesota.''

The design team brought those words to life. From the maroon and gold seating in the intimate bowl to the signature M's found everywhere from the recruiting-room carpet to the stainless-steel sinks, there is no doubt what state you're in. "At the Metrodome you didn't know where you were, except for what the fans were wearing," says Studio Hive principal Shawn Gaither, AIA. "Creating a sense of place became an M.O. for all of us."

The three architecture firms combined forces in the summer of 2006 after the state legislature approved a projected \$248 million stadium (the scope was later expanded). The U had already commissioned a plan by SRF Consulting Group to rearrange the roads in the area, based on a failed joint venture with the Minnesota Vikings.



[RELATED FIELDS]

University of Minnesota planners didn't anticipate that building the stadium would jumpstart the largest campus expansion since the West Bank, but it did. As planning for the stadium evolved, so did the U's need for new buildings for biomedical research—a hot field for academic research. The former railroad yards and parking lots north of the stadium site proved to be the best spot to extend the highly constrained campus.

The U owned most of that land, including the former Republic Creosote site, which required cleaning up 40,000 cubic yards of polluted soil. The new and realigned roads that defined the 35-acre stadium site also opened up an equal amount of land to the north and east. When the stadium's orientation was turned from its original north-south siting to be east-west, this campus edge was no longer a dead end.

A plan jelled for five new buildingsdubbed the Biomedical Discovery District-near the existing Lions Research Lab. First the Center for Magnetic Resonance Research was expanded. The Medical Biosciences Building was completed this past fall. Three other research areas-cancer, cardiovascular health, and neuro-infectious diseases-will be accommodated in additional buildings.

The stadium laid the groundwork for the biomedical district in another way, as well: The ambitious stormwater plan for the stadium encompassed the entire 72-acre East Gateway District, obviating the need to duplicate that costly effort for the new buildings. To both clean and slow down the water, "we pulled everything in the book," says Brian Swanson, the U's stadium project coordinator. SRF Consulting amassed bioswales around the stadium and parking lots, threeinch-high sand pans planted with grass, grit chambers, pervious pavement, and a dry pond across University Avenue that captures overflow and slowly drains it.

"Football was enough of a snowplow that we could do the infrastructure for the campus expansion for biomed," says Swanson. "But for football, we wouldn't have had the oomph."

These efforts, along with the extensive use of local and recycled materials, helped TCF Bank Stadium earn LEED Silver certification, the first collegiate stadium to do so. Originally oriented north-south, the stadium was turned to open to the west and the views of the campus and downtown (opposite top). The west plaza (below) has become an active public space for game rallies and other campus activities. One of the seven entries (opposite bottom) lets you know which team to root for.





TURNING THE OPEN END OF THE STADIUM TO THE WEST CAPTURED A SKYLINE VIEW AND CREATED MORE SPACE FOR THE WEST-PLAZA GATHERING AREA. "We basically took out the Vikings stadium, cut it down, and stuck the smaller Gophers stadium back on the plan," says Swanson.

But the building's north-south orientationa traditional stadium siting-struck the Populous team and Architectural Alliance principal Tom DeAngelo, FAIA, as wrong. "The south-facing design didn't seem to fit," says DeAngelo. "The campus is to the west, and so is downtown. That's the money shot at the end of the stadium." U president Robert Bruininks, who wakes up to the same downtown view from his house at Eastcliff, agreed. Turning the open end of the stadium to the west also created more space for the west-plaza gathering area, an advantage Populous was keen to exploit.

The reorientation had major ramifications. "It meant there was no backside," says Swanson, so the entire stadium needed to be finished to a high level. A mix of bricks that picked up the



[MEMORIAL MEMORIAL]



I never missed a football game at Memorial Stadium from fall 1957 through fall 1961. During those years we went from being a doormat in the Big Ten Conference to being the 1960 national champions.

Football Saturdays would start with the marching band drumming down University Avenue from Dinkytown to Memorial Stadium with the football crowd in tow. For the early part of those years we were the only major football team in the state (the Vikings didn't arrive until 1961). Colden Gopher football was *the* fall football event.

The 60,000-seat-plus stadium always seemed full, even when the Gophers weren't a top team. I had student seats high up on the 40-yard line on the north side of the stadium. I had roughly the same seats for all five years because I sat in the "card section." Under the command of the cheerleaders, our section held up cards of different colors in various formations. We were obliged to attend every game and were called upon to practice card "stunts" before game time.

It's hard to imagine my experience at the U without those football games. The season would start with the warm fall sun on our faces and gradually turn to cold and even snow for the Wisconsin game, which was traditionally the last game of the season. Memorial Stadium was as much a part of the campus as Northrop Memorial Auditorium and Coffman Memorial Union.

-Architect John Cuningham, FAIA

UNIVERSITY OF MINNESOTA TCF BANK STADIUM

Location: Minneapolis, Minnesota

Client: Regents of the University of Minnesota

Architect: Populous www.populous.com

Principal-in-charge: J. Scott Radecic

Project lead designer: Jeff Spear, AIA

Associate architects: Architectural Alliance; Studio Hive www.archalliance.com www.studiohive.com Energy modeling: The Weidt Group twgi.com

Landscape architect: Populous

Construction managers: Mortenson Construction; Thor Construction

Size: 900,000 square feet

Cost: \$303 million

Completion date: August 2009

Photographers: Christy Radecic; Joey Terrill





THE BRICK EXTERIOR AND BRICK WALL AROUND THE FIELD RECALL THE DEMOLISHED MEMORIAL STADIUM, WHOSE POWERFUL DESIGN BECAME A TOUCHSTONE. dark purples of nearby Mariucci and Williams arenas and McNamara Alumni Center was used to tie the sports district together. The brick exterior and brick wall around the field also recall the demolished Memorial Stadium (see sidebar on page 44), whose powerful design became a touchstone. "At Memorial, everyone went in a door. That's true here, too," says Populous' Jeff Spear, AIA, the project's lead designer. The soaring colonnade was another touch inspired by campus architecture, in this case Northrop Auditorium's columns. Dubbed the Minnesota Room, the around-the-stadium colonnade offers a weatherprotected walkway for fans and passersby.

The stadium layout is as clear as it gets. Large arched entrances pierce the horseshoe-shaped building. "We felt that a stadium with this gravity and mass needed a big door," Spear explains. A high water table meant the field couldn't be sunk more than eight feet below grade, so fans

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Talkin' 'Bout a Revolution

<< continued from page 17

We knew that the status-quo energy solution for a hospital in a city such as Colombo-running large banks of diesel-powered generators to supplement an unreliable power grid-would only add to the air pollution that causes and compounds the health problems of residents, particularly children. The alternative design solution we developed employs two high-temperature anaerobic digesters that efficiently convert organic city waste and sewage into clean, renewable biogas; the biogas is then used to operate the hospital, with the surplus serving other needs.

Here's how it all works: Smoke from open fires in the dumps is eliminated because the city's organic waste is now used as feedstock for the digesters, and nonorganic waste from the dumps is recycled by local entrepreneurs. Next, sewage is captured in hundreds of sanitary latrines in the slums and then transported by tuk-tuks and small tankers running on renewable energy to the digesters for conversion to biogas. Clean water, processed with renewable energy, is delivered back to the latrines for bathing and drinking as part of the larger cycle. (Clean water is a strong incentive for slum residents to walk to the latrines.) The cycle works because there is enough waste and sewage available to produce more biogas than what is needed to run the hospital. The extra biogas can be used to wean the thousands of tuk-tuks off of dirty fossil fuels, and also for cooking fuel.

There's much more to the project, of course, but this synopsis at least paints a picture of how regenerative design works. It also suggests that an array of individuals and disciplines contributed to the project. Indeed, each part of the solution outlined above emerged through the innovative work of several grassroots organizations in Minnesota that explore topics ranging from neighborhood composting to refugee-camp sanitation and energy self-reliance.

This in turn suggests that the will and the vision to engage in regenerative-design opportunities are no longer in short supply. Regenerative design may soon become a growth industry as science and the Internet continue to foster global connections and a heightened awareness of the environmental and energy challenges we face. In the meantime, we need to get a few good working models like the Embassy Medical Center operational and show the world a better future. **AMN**



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Brand New [Game] Day

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take steps or elevators up 24 feet to the single concourse. From there they funnel to the lower or upper bowls. The upper bowl is pushed forward slightly to increase intimacy with the field. Seating for the disabled is conveniently grouped along the concourse. Virtually all seating for the suites is outdoors, and premium seats don't look that different from general seating—all part of that populist approach.

TOUCH OF LUXURY A hierarchy of finishes is more evident inside the suites, where Studio Hive specified cushy fabric and leather chairs and natural-stone countertops in the premium spaces. "We had to compete with other venues such as the new Twins ballpark," says Gaither. A variety of spaces offer a variety of experiences, from the smashing downtown view in the President's and Regents' box to the four rolling chairs and TVs in the outdoor boxes on the Loge level. All offer a thrillingly immediate view of the field.

The top of the line is the 20,000-square-foot DQ Club, where fans can lounge and eat during games. Seating 800 and warmed by two limestone fireplaces, the club space could be an unusually comfy hotel ballroom but for the sweeping murals of Memorial Stadium above the bars and the delightful displays of U sports history on the walls. (Credit for the displays goes to Art Partners and the athletic department's Jeff Kaiser.)

Architectural Alliance and Studio Hive split the interior design of a good portion of the approximately 900,000 square feet of interior spaces-Studio Hive in charge of the premium areas and Architectural Alliance doing the more workaday spaces-but it's hard to tell where one's work ends and the other's begins. For the M Club, where U letter winners hang out, Architectural Alliance used the same carpet Studio Hive specified for the suites; the same classic lounge chair is found in the club spaces and the athletic recruiting room. (A fun touch: Some of the chairs are covered in custom fabric sporting the words to the U's fight song.) "All the spaces hang together as if designed by one hand," says Bob Zakaras, AIA, who served as Architectural Alliance's senior project architect.

The interior spaces are mostly Minnesota Nicewell appointed but not too showy-the exception being the vast, football-shaped home locker room, lined with 120 cherry-wood lockers. The new

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Brand New [Game] Day

<< continued from page 48

marching-band rehearsal room features custom instrument storage for the 350-person band, a major improvement over its former basement digs in Northrop. "Remember that the stadium isn't just for football," says Phil Esten, the U's associate athletic director. "It's used every day for the band and for recreational sports."

NOD TO NATIVE HISTORY At the stadium's open end, the west plaza-renamed Tribal Nations Plaza after the Shakopee Mdewakanton Sioux tribe contributed \$12 million-continues the Minnesota theme. Populous landscape architect Kobi Bradley worked with tribal chief Stanley Crooks to develop the design. "We talked about land, water, and sky," says Bradley. A fountain flowing over shalelike rocks represents water and Minnesota's northern landscape. A grassy area represents the southern grasslands. Eleven "skymarkers" contain information about each of the state's 11 tribes. Aspens planted next to each marker bring in the forests. The curved row of markers completes the stadium, both physically and historically.

The plaza also includes a Minnesota Veterans Tribute of flags and plaques designed by Architectural Alliance. The open space inside the stadium gates, near the west end zone, has become a popular place to hang out during games. And the openness has another plus, says DeAngelo: "You can drive by and actually look into the stadium and be part of the game."

Even when there's not a Cophers game under way, it's clear: TCF Bank Stadium speaks Minnesotan. A**MN**

Building Community

<< continued from page 35

But perhaps the most impactful architectural element is the grand communicating staircase in the heavily glazed link between the two wings. The two sides of the dual staircase mirror each other, so students descending on one side come eye to eye with students descending on the other—yet another opportunity for students to connect. In addition, the staircases are extra wide, allowing students to step to the side and have a conversation with their friends. "We wanted to encourage these accidental meetings among students, which again help build that sense of community," says Voda. **AMN**

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The Future Is Now

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harvesting is our friend, and we do that whenever we can in good design," says Blanski. "It's essential in learning environments. I look forward to the day when we can see metrics linking an increase in grade point averages per square foot of glass."

HGA worked closely with faculty and staff, led by Frey, to design a building that reflected the school's academic and scientific ideals. "Frey was so instrumental in this project. He had his fingers on the pulse of every element, even though he retired before it was complete," says Blanski. "It was his swan song."

Except that it wasn't. Frey is now working to establish a renewable energy and technology institute at the school. He's focusing on automotive technologies, fuel cells, and biogases, and working with scientists in countries such as Sweden. "In the U.S., our goal is to have 25 percent of our energy come from renewable sources in the coming years. But in Sweden their goal is 65 percent," says Frey. "We have a lot to learn from our friends."

So true. And thus, in this building, we have gathering places, all night long. AMN

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Main Street Mix

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on the building committee and started to piece together a palette of materials that would reflect their values and the local economy," says Neuhaus. "They have forestry and a paper mill in town, so wood was important. Then we brought in a regional granite that represents Stevens Point's connection to nature."

The addition has a glulam (glue-laminated) timber structure, and wood is used extensively on the interior-on the ceiling and in acoustic wall panels. (The exterior of the building is clad in a buff-colored brick that's common to the campus, as well as aluminum panels.) The architects also worked with a local photographer who, over the course of a year, made photographs of leaves of the local flora that were then printed onto glossy panels. Those four panels, each capturing a different season, run along the west wall of the main street, complementing the materials and reinforcing Stevens Point's connection to its forested environment. Thanks to this inspired expansion and renovation, the Drevfus University Center now does what the best public buildings aspire to do: It both fosters and reflects community. AMN

Refresher Course

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show them in 1907. By 1912 they were gone," says Lemmon. "We had the historic photos but no drawings. We sent the photos out to Boston Valley and their artists produced a little model and then built the 10-foot-high model, which we went out to approve." (In the firing, it shrank to 84 percent of that size.) While there, the architects also saw Boston Valley's technique for matching the new terra-cotta to the existing 11 tones of greenish-gray ornament: The company devised a special comb and then hand-speckled the 700 pieces with black paint.

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In the 2010 legislative session, the U is requesting \$36 million for the interior renovation, which will upgrade classrooms and allow the building's public spaces to regain some of their lost luster. "It will be a great building for another 100 years," says O'Brien. As it did a century ago, Folwell still serves the humanities, now as home to major languages. Its halls, punctuated by Portuguese and Italian posters between elaborate English-style door surrounds, are a reminder that architecture can indeed add to the romance of learning. AMN

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Metro Transit Parking Ramps, Lakeville and Roseville, MN: Wastewater Treatment Plant, St. James, MN; Minnesota Valley Transit Authority Office Renovations: University of Minnesota TCF Bank Stadium Stormwater Ponds, Minneapolis, MN; Riverfront Park, Sauk Rapids, MN; Comprehensive Plan, Dayton, MN

BRAUN INTERTEC

11001 Hampshire Avenue South Minneapolis, MN 55438 Tel: (952) 995-2000 Fax: (952) 995-2020 Email: info@braunintertec.com www.braunintertec.com Established 1957 Other in MN Offices: St. Paul, St. Cloud, Rochester, Mankato, Hibbing, Duluth Total MN Office: 330 Other Offices: Fargo, Bismarck, La Crosse, Waukesha, Cedar Rapids, Whitmore Lake Total Other Offices: 65

Firm Principals

Jon A. Carlson, PG Robert J. Janssen, PE George D. Kluempke, PC Charles R. Brenner, PE Michael M. Heuer, PE Steven J. Flaten, AIA

Serving as an engineering, consulting and testing firm providing solutions for property development, re-development, facilities management and infrastructurerelated issues. Provides services during each stage of development from the pre-project geo-technical and environmental evaluations through materials evaluation during construction and property management issues. Provides services nationally and internationally.

MP Battalion Barracks (commissioning), Fort Leavenworth, KS; University of Minnesota Student Teaching & Student Services Building (inspection services), Minneapolis, MN; Rough Rider Wind Farm, Dickey County, ND; Central Corridor Light Rail Transit, St. Paul and Minneapolis, MN; Minnesota Twins Ballpark, Minneapolis, MN; Lowry Avenue Bridge, Minneapolis, MN

BURNS & MCDONNELL ENGINEER CONSULTANTS

8201 Norman Center Drive Bloomington, MN 55437 Tel: (952) 656-6003 Fax: (952) 229-2923 Email: gsieve@burnsmcd.com www.burnsmcd.com Established 1898 Total MN Office: 20 Other Offices: Kansas City, Chicago, Houston, St. Louis, Denver, Phoenix, San Francisco, San Diego, Atlanta, New York, Washington D.C., New York

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Total Other Offices: 3,000 Contact: Gene Sieve, PE, LEED AP, (952) 656-6003 x3636

Firm Principal

Gene Sieve, PE, LEED AP

Founded in 1898, Burns & McDonnell is a full-service engineering. architecture, construction, environmental and consulting solutions firm. The company's multi-disciplined staff of more than 3,000 includes engineers, architects, construction professionals, planners, estimators, economists, technicians and scientists, representing virtually all design disciplines. Burns & McDonnell plans, designs, permits, constructs and manages facilities all over the world with one mission in mind - to make our clients successful. Expertise in sustainable design, energy plants, higher education, aviation, Department of Defense security, AV/telecomm, fire protection, environmental, and commissioning services.

University of Minnesota Old Main Steam Plant; Minnesota Air National Guard (master planning); MN ARNG Reserve Center (commissioning): University of Minnesota NOVA Far Detector Facility; NASA/Ellington Field (fire protection upgrades): University of Minnesota (deep tunnel steam piping project): Alaska Airlines (gate renovation): Qatar Foundation College of Media and Communication; South Dakota State University Northern Plains Biostress Lab Commissioning

CAIN OUSE ASSOCIATES, INC.

1310 East Highway 96 White Bear Lake, MN 55110 Tel: (651) 426-9549 Fax: (651) 426-5048 Email: jcain@cainouse.com www.cainouse.com Established 1983 Total in MN Office: 12 Contact: Jay J. Cain, PE, (651) 426-9549

Firm Principals

Jay J. Cain, PE Wallace M. Ouse, PE Scott D. Thomas, PE, LEED AP Allan V. Theisen, PE

We are a mechanical and electrical engineering firm specializing in cost-effective, energy conscious design on a wide-variety of project

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types, including healthcare, specialty housing, retail, public works, office, educational, worship, recreational and industrial. Specialties include lighting design, energy conservation and renewable energy. Project types range from specialized security for the University to an entertainment venue for Jackpot Junction.

Sholom Home East, St. Paul, MN: New Public Works Facility, North St. Paul, MN: Capital Complex Lighting Assessment, St. Paul, MN: Main Street Tree and Street Lighting, Anoka, MN: Wooddale Pointe Assisted Living, Saint Louis Park, MN: Stearns County West Side Service Center, Waite Park, MN

CLARK ENGINEERING CORP.

621 Lilac Drive North Minneapolis, MN 55422 Tel: (763) 545-9196 Fax: (763) 541-0056 Email: info@clark-eng.com www.clark-eng.com Established: 1938 Total in MN Office: 36 Total in Other Offices: 24 Other Offices: Aberdeen, Sioux Falls, Brookings, Abyu Dhabi Contact: Alan Duff (aduff@clark-eng.com), (763) 545-9196

Firm Principals

Cory Casperson, PE Tim LaBissoniere, PE Abi Assadi, PE Donald Weigel, PE Kevin Goff, PE

Clark Engineering Corporation provides structural engineering, civil engineering and surveying services for commercial, educational, industrial, hospitality, and public sectors for new and existing facilities throughout the world. Clark also offers a wide-range of specialty services, including emergency responses, 3D laser scanning, restoration, sustainable design, and vibration and blast-resistant structures. Civil engineering offers site development and storm-water management.

Boot Hill Casino. Dodge City, KS: Hospital, Correy, PA; Princeton School (restoration), Princeton, MN; DeKalb High School (site design), DeKalb. IL: Anoka County Public Safety Campus, Minneapolis, MN; Woodwinds Hospital (site design), Woodbury, MN

DARG BOLGREAN MENK, INC.

7575 Golden Valley Road, Suite 210 Golden Valley, MN 55427 Tel: (763) 544-8456 Fax: (763) 544-8914 Email: info@dbm-inc.com www.dbm-inc.com Established 1966 Total in MN Office: 7 Contact: Harry D. Menk, PE, (763) 230-7345

Firm Principals

Gene Bolgrean, PE Harry D. Menk, PE

Complete structural engineering services for commercial/retail, office/warehouse, academic, industrial, governmental, medical/ health, housing, religious and parking facilities. With expertise in steel, concrete, masonry and wood, DBM has engineered new construction, additions and renovations/restorations on over 7,000 projects in 21 states.

Olmsted County Public Works. Rochester. MN; River Falls Junction, River Falls, WI; Pioneer Care Center, Fergus Falls, MN; Hillcrest Country Estates, Omaha, NE; Chanhassen Public Works. Chanhassen, MN; Inver Glen Senior Living, Inver Grove Heights, MN

DOLEJS ASSOCIATES

1624 North Riverfront Drive Mankato, MN 56001 Tel: (507) 625-7869 Fax: (507) 388-9225 Email: mdolejs@dolejsinc.com Established 1977 Other MN Office: Lakeville, (952) 435-8149 Contact: Mike Dolejs, PE (507) 625-7869

Firm Principals

Michael Dolejs, PE, LEED AP Christopher Dolejs, PE

Dolejs Associates provides

mechanical and electrical design services for the building industry. Building types include educational, recreational, churches, engineered housing, hotels, restaurants and public works. An experienced and stable staff provides expertise in HVAC, plumbing, fire protection,

temperature control, lighting, power, communication and life safety systems.

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MnDOT Regional Headquarters, Mankato, MN; Chatfield Elementary School, Chatfield, MN; Hosanna Lutheran Church, Lakeville, MN: Lutherhaven Nursing Home (HVAC upgrades), Montevideo, MN: Faribault Public Works Building, Faribault, MN: Village Cooperative Senior Housing Complex, Mason City, IA

DUNHAM ASSOCIATES, INC.

50 South Sixth Street, Suite 1100 Minneapolis, MN 55402-1540 Tel: (612) 465-7550 Fax: (612) 465-7551 Email: info@dunhameng.com www.dunhameng.com Established 1960 Other MN Office: Duluth Total in MN Office: 81

Firm Principals

Kathleen Kolbeck, PE, LEED AP Jay Rohkohl, PE, LEED AP Steve Centilini, PE, LEED AP Tom Betley, CFO Dale Holland, PE, LEED AP

Dunham offers mechanical, electrical and telecommunications consulting engineering services to our clients across the United States for aviation, commercial, education, healthcare, hospitality and retail projects. We are engineering leaders in sustainable design strategies, energy modeling, system analysis, and commissioning, enabling us to help our clients optimize the performance of their building systems, and, we are Revit Rockstars!

Orchestra Hall, Minneapolis, MN: The Wilder Center, St. Paul, MN: Maple Grove Hospital, Maple Grove, MN: University of Minnesota Duluth (civil engineering building), Duluth, MN: Methodist Hospital (heart and vascular center), St. Louis Park, MN: Jumers Casino, Rock Island, IL

ENGINEERING DESIGN

1112 North Fifth Street Minneapolis. MN 55411 Tel: (612) 343-5965 Fax: (612) 343-5982 Email: jhruby@edilimited.com www.edilimited.com Established 2002 Total in MN Office: 21 Contact: Jay Hruby (612) 343-5965

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Firm Principals

Jay Hruby PE Larry SvitakPE

EDI provides innovative M/E engineering solutions for a variety of building types. Our services include M/E engineering, building commissioning, energy modeling and daylight modeling services. EDI is committed to delivering designs that are energy efficient. maintainable and sustainable. We are passionate in our creative design, attention to detail and commitment to teamwork – from defining initial performance goals through validation by commissioning.

St. John's Abbey Guesthouse and Chapter House, Collegeville, MN; Wright County Law Enforcement Center, Buffalo, MN; St. Cloud Public Library, St. Cloud, MN; SPPS Central High School Technology Upgrade, St. Paul, MN; City of Minneapolis Water Works Maintenance Facility, Fridley, MN; Blue Earth County Law Enforcement Center, Mankato, MN

ERICKSEN ELLISON AND ASSOCIATES

305 2nd Street NW, Suite 105 New Brighton, MN 55112 Tel: (651) 632-2300 Fax: (651) 632-2397 Email: tpeterson@eeaengineers.com www.eeaengineers.com Established 1954 Total in MN Office: 19 Contact: Todd Peterson, PE, (651) 632-2320

Firm Principals

James H. Art, PE Terri A. Fleischhacker Todd A. Peterson, PE William F. Thiesse, PE

EEA is a mechanical/electrical engineering company with extensive experience in design and commissioning of - Public Projects: judicial/correctional, libraries. government, and maintenance. Commercial: medical facilities, data centers, and retail. Education: recreation centers, libraries, laboratories, dormitories, and campus centers; EEA has LEED certified engineers specializing in system modeling and innovative approaches for reducing energy consumption without sacrificing utility or comfort. continued next column

Minneapolis Central Library (design/ commissioning), Minneapolis, MN: Grinnell College New Campus Center (design and LEED certification review), Grinnell, IA: MCF Faribault Campus (energy infrastructure/ renovation/new buildings), Faribault, MN: Unisys NAEC Data Center (design/ commissioning), Eagan, MN; Macalester College (athletic/recreation center), St. Paul, MN: Bethel University Commons, Arden Hills, MN

ERICKSEN, ROED AND ASSOCIATES, INC.

2550 University Avenue West, Suite 201-S St. Paul, MN 55114 Tel: (651) 251-7570 Fax: (651) 251-7578 Email: info@ericksenroed.com www.ericksenroed.com Established: 1985 Total in MN Office: 45 In Other Office: 40 Other Office: Eau Claire Contact: Michael DeSutter or Kent Larson, (651) 251-7570

Firm Principals

Michael A. DeSutter, PE James D. Roed, PE William T. Buller, PE, SE Robert J. Quinn, PE Michael S. Steenson, PE

Erickson Roed and Associates are full-service structural engineers who deliver to our clients innovative and economical design solutions. Our range of markets includes retail, commercial, medical, energy, multi-family, hospitality, arts and educational, parking facilities, sports/recreational/entertainment, high-rise, remodeling and renovation projects. We are registered throughout the United States, utilize Revit/BIM software, and are the developers of the (patented) ER-Post precast building system.

TCF Stadium, University of Minnesota, Twin Cities Campus, Minneapolis, MN; Guthrie Theater and Parking Ramp, Minneapolis, MN; Target Stores, Nationwide; Fort Lewis Washington (Army Air Force exchange service and battalion), Tacoma, WA Westin Galleria Hotel/Condominium Complex, Edina, MN; Maple Grove Hospital, Maple Grove, MN

FOSTER, JACOBS & JOHNSON, INC.

345 Canal Park Drive, Suite 200 Duluth, MN 55802 Tel: (218) 722-3060 Fax: (218) 722-1931 Email: mail@fjj.com www.fjr.com Established 1922 Total in MN Office: 14 Contact: James Johnson, (218) 722-3060

Firm Principals

James R. Johnson, PE Charles F. Jacobs, PE

We offer full-service mechanical and electrical consulting services, including design and preparation of contract documents for fire protection, plumbing, HVAC, controls, lighting, power distributions, communications and life safety systems and construction administration.

Denfield High School (miscellaneous improvements and addition), Duluth, MN; Ely-Bloomenson Hospital (renovation), Ely, MN; Embassy Suites, Brooklyn Center, MN; Grand Casino Hinckley (capital remodeling), Hinckley, MN; Minnesota Air National Guard South Hanger, Minneapolis/St. Paul, MN; University of Minnesota-Duluth (sports and health center expansion), Duluth, MN

GAUSMAN & MOORE ASSOCIATES, INC.

1700 West Highway 36 700 Rosedale Towers Roseville, MN 55113 Tel: (651) 639-9606 Fax: (651) 639-9618 Email: mleutgeb@gausman.com www.gausman.com Established 1935 Other MN Offices: Duluth, (218) 722-2555 Total in MN Offices: 64 Other Office: Los Angeles Total in Other Offices: 17 Contact: Mark Leutgeb, Bus. Dev. (651) 604-3141

Firm Principals

James W. Giefer, PE James A. Keller, PE, LEED AP D. Lane Hersey, PE, LEED AP Robert B. Full, PE Dave T. Blume, PE, LEED AP Edward L. Studniski, PE, LEED AP James D. Manning, PE, LEED AP

Gausman & Moore provides mechanical, electrical, fire protection, and technology support engineering services. Areas of special expertise

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include sustainable design (LEED * AP), mission critical power systems, forensic investigations, lighting design, and health care.

University of Minnesota Duluth Labovitz School of Business and Economics (LEED Gold Certified project), Duluth, MN: Santa Barbara Community College School of Media Arts, Santa Barbara, CA: Bethany Lutheran (academic and administration building), Mankato, MN: Madame Tussauds, Hollywood, CA. Grandview Hospital, Ironwood, MI: U.S. Army Reserve (training centers and maintenance facilities.) Nationwide: Retail Roll-out Programs, Nationwide

HOWARD R. GREEN COMPANY

2550 University Avenue West, Suite 400N St. Paul, MN 55114 Tel: (651) 644-4389 Fax: (651) 644-9446 Email: rfroberg@hrgereen.com www.hrgreen.com Established 1913 Total in MN Office: 40 Other Offices: Iowa, Illinois, South Dakota, Missouri, Texas Total in Other Offices: 370 Contact: Rick Froberg, (651) 659-7757

Firm Principals

Rick Froberg, AIA, RRC, LEED AP Dave Raby, PE Jack Broz, PE Jonathon Kusa, PE, LEED AP

HRG offers a full range of engineering services, with expertise in all major building systems including structural, mechanical and electrical. HRG specializes in roof and green roof design and consulting, plaza waterproofing, masonry restoration, window replacement, site engineering and outdoor athletic facilities. Project types include educational, institutional, commercial, municipal, and industrial.

University of Minnesota, various engineering projects on the Minneapolis, St. Paul and Morris Campuses; Minneapolis City Hall Courtyard (green roof waterproofing design), Minneapolis, MN; Rice County Courthouse Masonry Restoration, Faribault, MN; Hopkins Public Schools (track restoration), Hopkins, MN; Metro Transit M.J. Ruter Bus Garage (HVAC retrofit), Brooklyn Center, MN; IBM Roof Replacement Projects. Rochester, MN, Tucson, AZ, Boulder, CO

HALLBERG ENGINEERING, INC.

1750 Commerce Court White Bear Lake, MN 55110 Tel: (651) 748-1100 Fax: (651) 748-9370 Email: hei@hallbergengineering.com www.hallbergengineering.com Established 1979 Total in MN Office: 37 Contact: Richard Lucio, PE, LEED AP (651) 748-4386

Firm Principal

Joseph Hallberg, PE

Hallberg Engineering, Inc. (HEI) is a mechanical and electrical consulting engineering firm. We specialize in the design of mechanical, electrical, and technology systems, along with building analysis and commissioning. Our services also include system upgrades and retrofits to improve indoor air quality and energy conservation. We are dedicated to fulfilling our clients' needs for mechanical and electrical engineering solutions for buildings that work.

REI (LEED project), Chicago, IL; Nelson Builders Corporate Office Building (LEED), New East Ridge High School; New Chanhassen High School, Chanhassen, MN; Minnesota Sex Offenders Program (MSOP); United Health Group Corporate Office (LEED Commissioning).

HAMMEL, GREEN AND ABRAHAMSON, INC. (HGA)

701 Washington Avenue North Minneapolis, MN 55401 Tel: (612) 758-4000 Fax: (612) 758-4199 Email: info@hga.com www.hga.com Established 1953 Other MN Office: Rochester Total MN Offices: 281 Other Offices: Milwaukee, Sacramento, Los Angeles, San Francisco Total in Other Offices: 225 Contact: Julie Luers, Dir. Mktg. (612) 758-4613

Firm Principals

Chuck Cappellin, PE, LEED AP Jeff Harris, PE, LEED AP Leigh Harrison, PE, LEED AP Kenny Horns, PE, LEED AP Doug Maust, PE, LEED AP Yan Shagalov, PE

HGA has engineering expertise in the design of a broad range of facility

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types. In addition to traditional civil, mechanical, structural and electrical engineering, HGA has specialists in commissioning, clean environments, industrial processes, central plants, utility infrastructure, facility assessments, telecommunications systems design, healthcare technology applications design, specialty lighting and sustainable design. HGA engineers also have experience in alternate delivery methods.

B'nai Israel Synagogue, Rochester, MN; McQuay Applied Development Center, Plymouth, MN; Minnesota State University, Trafton Science Center, Mankato, MN; Minnesota Twins Ballpark (civil site and utility work), Minneapolis, MN; University of Minnesota Amplatz Children's Hospital, Minneapolis, MN; University of Minnesota, (science teaching and student services building), Minneapolis, MN

HEYER ENGINEERING

123 – 3rd Street North, Suite 600 Minneapolis, MN 55401 Tel: (612) 238-3805 Fax: (612) 238-3806 Email: dave@heyer-eng.com www.heyerengineering.com Established 1983 Total in MN Office: 2 Other Office: Fargo Total in Other Office: 20 Contact: Dave Bruns (612) 238-3805

Firm Principals Jim Heyer, PE Dave Bruns, PE

Heyer Engineering offers full-service structural engineering with offices in Minneapolis and Fargo. Jim Heyer, PE is licensed and has designed structures in 38 states. Over a 24-year period, more than 7,000 projects have been accomplished, including all types of occupancies and construction materials. Over the years, we have formed excellent relationships with our clients, who frequently use our services for the majority of their projects. This is the result of our dependability, quality designs, creativity and wealth of experience.

Chanhassen High School, Chanhassen, MN; Horizon Middle School, Moorhead, MN; Ralph Engelstad Arena, Grand Forks, ND; Northwest Aerospace Training Center, Eagan, MN; Jackson Place/Bluff Block, Elk River, MN; Innovis Health Medical Center, Fargo, ND

I & S GROUP, INC.

1409 North Riverfront Drive Mankato, MN 56001 Tel: (507) 387-6651 Fax: (507) 387-3583 Email: info@is-grp.com www.is-grp.com Established 1973 Other MN Office: Faribault Total in MN Offices: 65 Other Offices: Madison Total in Other Offices: 5 Contact: Chad Surprenant, PE (507) 387-6651

Firm Principals

Chad Surprenant, PE Jason Hoehn, PE, SE Mark Cipos, AIA, CID Chuck Brandel, PE Brian Gjerde, PE Lynn Bruns, PE, LEED AP

I&S is a full-service design firm serving clients throughout the Midwest. We provide a full suite of design services including civil, structural, electrical, and mechanical engineering, land surveying, environmental services, landscape architecture, and architectural design. Utilizing Revit and Civil 3D as well as traditional CAD throughout our workflow, I&S can provide design services to complement any project.

Holiday Inn Express & Suites, Mankato, MN; Heintz Toyota, Mankato, MN; Prior Lake Fire Station No. 2, Prior Lake, MN; Faribault Soccer Complex, Faribault, MN; Minnesota State University (athletic fields), Mankato, MN; Frazee-Vergas Elementary School (ventilation improvement), Frazee, MN

INSPEC, INC.

5801 Duluth Street Minneapolis, MN 55422 Tel: (763) 546-3434 Fax: (763) 546-8669 www.inspec.com Established 1973 Total in MNB Office: 56 Other Offices, Milwaukee, Chicago Total in Other Offices: 9 Contact: Fred King, (763) 546-3434

Firm Principals

Michael D. Remnington, PE Gary C. Patricl, AIA, RRC Pete Nottleson

Inspec offers our clients' smart engineering for roofs, walls, pavements

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and waterproofing. Our services include surveys and evaluations, failure investigations, design and consultation, expert witness testimony, construction administration and observation, onsite and lab testing, and customized facility management programs. We also specialize in historic building renovation and outdoor athletic facilities.

Target Center (vegetated roof replacement), Minneapolis, MN; Boston Scientific (roof replacement), Maple Grove, MN; MnSCU MN West Pipestone (roof replacement.) Pipestone, MN; University of North Dakota (building envelope restoration), Grand Forks, ND; Fort Knox (roof management surveys), KY; Minneapolis/St. Paul International Airport (green concourse expansion, tunnel/ foundation waterproofing and sub-surface drainage), Minneapolis, MN

KARGES-FAULCONBRIDGE, INC.

670 West County Road B St. Paul, MN 55113 Tel: (651) 771-0880 Fax: (651) 771-0878 www.fkiengineers.com Established 1996 Total Staff: 68 Contact: David Jansa, (651) 771-0880

Firm Principals

James A. Faulconbridge, PE Randy P. Christenson, PE

Karges-Faulconbridge, Inc. (KFI) is a unique engineering firm of engineers, designers, professional estimators, and commissioning specialists registered in 50 states, the District of Columbia and Puerto Rico. Located in St. Paul, KFI's office building was the first building in Minnesota to obtain the LEED-EB Gold certification. KFI provides engineering and commissioning services for industrial, institutional, educational, healthcare, government, and commercial organizations.

Watertown Elementary School, Watertown, MN; St. Joseph PK-8, St. Joseph, MN; University of Minnesota Morris (community services building), Morris, MN; Upper Iowa University (housing/LA building/student union); Elk River Library, Elk River, MN; Commissioning Great River Energy Headquarters; Commissioning TCF Bank Stadium, Minneapolis, MN

KIMLEY-HORN AND ASSOCIATES, INC.

2550 University Avenue West, Suite 345N St. Paul, MN 55114 Tel: (651) 645-4197 Fax: (651) 645-5116 Email: tom.lincoln@kimley-horn.com www.kimley-horn.com Established 1967 Total in MN Office: 71 Other Offices: Raleigh (Corporate, 61 offices nationwide) Total in Other Offices: 1640 Contact: Thomas Lincoln, PE (651) 643-0453

Firm Principals

Gary Ehret, PE Jon Horn, PE Mike Hermann, PE Paul Danielson, PE Jeanne Witzig, AICP Mark Bishop, PE

Kimley-Horn and Associates, Inc. is a national consulting engineering firm with a Twin Cities office that serves private and public clients across the Midwest. Our capabilities encompass all phases of a project from early planning through construction administration. Kimley-Horn effectively integrates engineering, planning, transportation, and environmental services to efficiently meet our clients' objectives.

Central Corridor LRT, Minneapolis to St. Paul, MN: Northstar Commuter Rail, Minneapolis to Big Lake, MN: Metropolitan Airports Commission, MSP International Airport, MN: City of Maplewood Municipal Services, Maplewood, MN; Bloomington Central Station Development, Bloomington, MN; Penn and American Development, Bloomington, MN

KRECH, O'BRIEN, MUELLER & ASSOCIATES

6115 Cahill Avenue Inver Grove Heights, MN 55076 Tel: (651) 451-4605 Fax: (651) 451-0917 Email: jkrech@komainc.com www.komainc.com Established 1987 Total MN Office: 14 Contact: James Krech, (651) 789-4120

Firm Principals

James H. Krech, PE Michael J. Lisowski, PE Matthew J. Van Hoof, PE Daniel J. O'Brien, AIA Brady R. Mueller, AIA continued next column KOMA offers structural engineering, architecture and interior design services. Registered as structural engineers in 31 states, typical projects include industrial, commercial, institutional, ecclesiastical, forensic, agricultural, blast resistance and hazardous waste confinement. Specialties include granular material storage, hazardous liquid containment, corrosive environments, blast resistance and aluminum green house design.

Nickelodeon Universe, Bloomington, MN; American Girl, Bloomington MN; Park High School, Cottage Grove, MN; Allina Cottage Grove, Cottage Grove, MN; Animal Emergency Clinic & Surgery Center, Oakdale, MN; Longhorn Steakhouse, Nationwide

LARSON ENGINEERING, INC.

3524 Labore Road White Bear Lake, MN 55110 Tel: (651) 481-9120 Fax: (651) 481-9201 Email: info@larsonengr.com www.larsonengr.com Established 1979 Total in MN Office: 46 Other Offices: Scottsdale, Atlanta, Macon, Chicago, St. Louis, Omaha, Milwaukee, Appleton Total in Other Offices: 172 Contact: Kesh Ramduler, PE (651) 481-9120

Firm Principals

Lee Granquist, PE John J. Pastore, PE, AIA Kesh Ramdular, PE Henry Voth, PE Roger Pocta, PE

Founded in 1979, Larson Engineering provides structural, civil, mechanical and process engineering services. We excel in curtain wall design, pavement maintenance programs, athletic surfaces, and commercial/ industrial structures. As a member of the U.S. Green Building Council, we are especially proud of our work on bio-fuels, wind turbines, and LEED-certified structures.

Army Aviation Support Facility, St. Cloud, MN: Cobalt Condominiums, Minneapolis, MN: Coloplast, Minneapolis, MN: Heraeus, White Bear Township, MN: World Trade Center, Tower 4, New York, NY: Ocean Financial, Singapore, Indonesia

LKPB ENGINEERS, INC.

1935 West County Road B2, Suite 300 St. Paul, MN 55113 Tel: (651) 633-1223 Fax: (651) 633-1355 Email: karla.sampson@lkpb.com www.lkpb.com Established 1969 Total in MN Office: 42 Contact: Karla Sampson (651) 288-6110

Firm Principals

Peter A. Potvin, PE Gayland J. Bender, PE John M. Killeen, PE Michael A. Westemeier, PE

LKPB Engineers, Inc. (LKPB) is a mechanical and electrical consulting engineering firm founded in 1969. The firm provides services to clients in the education, healthcare, corporate, commercial, historical, recreational and government environments. Services include design phase, master planning, construction documentation, construction administration and commissioning.

TCF Bank Football Stadium, University of Minnesota, Minneapolis, MN; Tufts University (athletic addition), Medford, MA; West 7th Fire Station and Headquarters, Saint Paul, MN; 8200 Tower, Normandale Lakes Office Park, Bloomington, MN; Carleton College (new residence halls), Northfield, MN; Como Zoo Polar Bear Odyssey, Saint Paul, MN

LOUCKS ASSOCIATES

7200 Hemlock Lane, Suite 300 Minneapolis, MN 55369 Tel: (763) 424-5505 Fax: (763) 424-5822 Email: home@loucksassociates.com www.loucksassociates.com Established 1976 Contact: Mike O'Brien (763) 424-5505

Firm Principals

Jeffrey A. Shopek, PE Paul J. McGinley, PLS Michael J. St. Martin, PE Paul A. Kangas, ASLA

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Services include site layout, grading, storm water conveyance systems, water quality retention ponds, wetland mitigation, EAW/EIS documents, Phase I and II ESAs, groundwater contamination, ALTA title surveys, site feasibility studies, comprehensive plan amendments, rezoning, permitting and approvals for industrial, commercial, retail, corporate campus, assisted living community, senior co-op, townhome and education facilities.

Maple Grove Hospital, Maple Grove, MN; CVS Stores, Various MN Locations; St. Jude Medical Campus, Little Canada, MN; Children's Hospital, Minneapolis, MN; University of Minnesota (education/sciences building), Minneapolis, MN; Cuyuna Senior Housing, Crosby, MN

MATTSON MACDONALD YOUNG, INC.

901 North 3rd Street, Suite 100 Minneapolis, MN 55401 Tel: (612) 827-7825 Fax: (612) 827-0805 www.mattsonmacdonald.com Established 1983 Total in MN Office: 14 Contact: Stephanie Young, PE

Firm Principals

David H. Macdonald, PE Stephanie J. Young, PE Eric Bunkers, PE Joe Cain, PE

Mattson Macdonald Young, Inc. provides structural engineering services for a wide range of building types and sizes. We provide analysis and design for new construction, adaptive reuse, renovation and expansion. We have provided services for multi-million dollar, high-rise construction and oneroom porch additions. We strive to produce good work and make sure our clients enjoy the experience of working with us.

The Chambers Hotel, Minneapolis, MN; The Humboldt Mill + Annex, Minneapolis, MN; St. Croix Lutheran High School Chapel, West Saint Paul, MN; Breck School Commons Addition, Golden Valley, MN; 7 of the 29 Homes by Architects Tour Residences, Various Locations, MN; Swedish Institute Solarium Restoration, Minneapolis, MN

MCCONKEY JOHNSON SOLTERMANN, INC.

241 Cleveland Avenue South, Suite B2 St. Paul, MN 55105 Tel: (651) 698-5626 Fax: (651) 698-5628 Email: rjohnson@mjs-inc.net www.mjs-inc.net Established 1978 Total in MN Office: 6 Contact: Richard W. Johnson, (651) 698-5626 x16

Firm Principals

Richard W. Johnson, PE Christian Soltermann, PE

Structural engineering consulting services for commercial, industrial, institutional and residential projects; also structural assessments of existing structures. Design office that stresses cooperation, communication and a knowledgeable exchange of ideas. Licensed in 16 states.

Creekside Commons, Minneapolis, MN; Arbor Lakes Senior Living, Maple Grove, MN; Audubon Crossing, Minneapolis, MN; People's State Bank, Minot, ND; Hayden Heights Elementary, St. Paul, MN; Turtle Crossing (retail), Mission, SD

MEYER, BORGMAN & JOHNSON

12 SouthSixth Street, Suite 810 Minneapolis, MN 55402 Tel: (612) 338-0713 Fax: (612) 337-5325 Email: info@mbjeng.com www.mbjeng.com Established 1955 Other MN Office: Duluth Total MN Office: 49 Other Office: Phoenix Total Other Office: 7 Contact: Dan Murphy (612) 604-3604

Firm Principals

Daniel E. Murphy, PE Michael J. Ramerth, PE Jerod Hoffman, PE Anthony J. Polusny, PE Brion Szwed, PE

50 years of thorough, responsive, and creative structural design for all building types. Committed to provide design solutions that fulfill the architectural vision while maintaining constructability and

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value to the owner. Services include design, analysis, feasibility studies, construction documents, field observation, special inspections, forensics, and ramp condition surveys.

University of Minnesota – Fairview Amplatz Children's Hospital, Minneapolis, MN; Coloplast North American Headquarters (expansion), Minneapolis, MN; Northrop Auditorium (renovation), Minneapolis, MN; Duluth Airport Terminal (expansion), Duluth, MN; Minnesota Orchestra Hall (renovation), Minneapolis, MN; Target Field (peer review, construction administration, steel connection design), Minneapolis, MN

NORTHERN TECHNOLOGIES, INC.

6588 141st Avenue NW Ramsey, MN 55303 Tel: (763) 433-9175 Fax: (763) 323-4739 Email: NTI@northerntechinc.com www.northerntechinc.com Established 1996 Total MN Office: 14 Other Offices: Fargo, Grand Forks Total Other Offices: 26 Contact: Steve Johnston, (763) 433-9175

Firm Principals

Steve Johnston PE Merv Mindess, PE Marc Shannon, PE Bret Anderson, PE Dan Gibson, PE

Northern Technologies (NTI) provides geotechnical, materials and forensic engineering, construction materials testing, special inspections, and environmental services to all levels of government, facility owners, developers, contractors, architects, engineers, and any other entity focused on the built environment. NTI takes pride in our value-added contribution to the collaborative design and construction process.

St. Joseph's Medical, Brainerd, MN; First District Association Evaporator Building, Litchfield, MN; Hmong College Prep Academy, St. Paul, MN; Prairie Seeds Academy, Brooklyn Park, MN; Ridgewater College, Willmar, MN; St. Michael City Hall and Library, St. Michael, MN

OLSSON ASSOCIATES

6600 France Avenue South, Ste. 206 Edina, MN 55435 Tel: (952) 941-0477 Fax: (952) 941-0644 Email: banderson@oaconsulting.com www.oaconsulting.com Established 1956 Total MN Office: 8 Other Offices: Phoenix, Denver, Lincoln, Omaha, Springfield, Des Moines, Kansas City, Tucson Total Other Offices: 650 Contact: Brandon Anderson, PE (952) 927-3805

Firm Principals

Brandon Anderson, PE Harlan Hallquist Chad Doane, PE LEED AP Jack Lynch, RLA, ASLA Ryan Beckman, PE

Olsson Associates is a successful engineering and design firm that has been creating public and private projects throughout the United States for more than 50 years. We offer comprehensive design and consulting services in water/ wastewater, water resources, land development, landscape architecture, urban planning, environmental sciences, transportation, municipal, geotechnical, special inspections, and mechanical and electrical. Olsson Associates is on the web at www.oaconsulting.com

Wal-Mart Supercenter (expansion), Fergus Falls, MN; Public Safety Addition and City Hall Remodel, Inver Grove Heights, MN; Community Justice and Rehabilitation Center, Sisseton, SD; Regions Hospital (Jackson Street entrance), St. Paul, MN; Lifetime Fitness, Centennial, CO; John Deere North America (marketing and sales facility), Olathe, KS

PIE FORENSIC CONSULTANTS

12100 Singletree Lane, Suite 179 Eden Prairie, MN 55344 Tel: (952) 746-1299 Fax: (952) 746-1298 Email: berickson@callpie.com www.callpie.com Established 1999 Total in MN Office: 3 Other Offices: Denver, Phoenix Total in Other Offices: 45 Contact: Brian Erickson, PE, (952) 746-1299

Firm Principals

Paul Duncan. Pe Matt Blackmer, PE Craig Sellers, PE

PIE Forensic Consultants provides engineering consulting services to owners, designers and contractors on new construction and building retrofit projects, including building enclosure commissioning (BECx), air barrier testing and consulting, roofing and waterproofing, facade testing, and forensic evaluations of existing buildings. Our building scientists and engineers can assist in all facets of your project.

Solaris, Vail, CO; U.S. Air Force Academy Vandenburg Hall, Colorado Springs, CO; Fort Buss Troop Medical Clinic, El Paso, TX; Shock Hill Lodge and Spa, Breckenridge, CO; Medical Education and Training Campus, Fort Sam Houston, TX; Observatory Place Residences, Denver, CO

REIGSTAD & ASSOCIATES, INC.

192 West 9th Street St. Paul, MN 55102 Tel: (651) 292-1123 Fax: (651) 292-9565 Email: greigstad@reigstad.com www.reigstad.com Established 1979 Total in MN Office: 26 Other Office: Gulfport Total in Other Office: 2 Contact: Gordon H. Reigstad (651) 292-1123

Firm Principals

Gordon H. Reigstad, PhD. PE, SE Charles R. Ashton, PE David A. Senter, PE (CA, CO, ND, SD, WI)

Reigstad & Associates is a fullservice engineering firm specializing in structural design of all types of buildings. Our Precast Division can handle a wide spectrum of projects

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including multi-story garages, stadia/raker systems and complete building systems. The Parking Garage Division provides full=service parking consulting. Our services include site planning, functional and conceptual design, and wayfinding/ signage design.

Harrah's Cherokee Hotel. Casino and Parking Ramp, Cherokee, NC; Red Hawk Casino Resort, Placerville, CA; AFL-CIO State Fair Pavilion, St. Paul, MN: St. Patrick's Catholic High School, Biloxi, MS; River Spirit Casino Parking Ramp Tulsa, OK; Ole Miss Baseball Stadium (precast expansion), Oxford, MS

SEBESTA BLOMBERG

2381 Rosegate

Roseville, MN 55113 Tel: (651) 634-0775 Fax: (651) 634-7400 Email: info@sebesta.com www.sebesta.com Established 1994 Other MN Office: Rochester Total in MN: 100 Other Offices, Arlington , Boston, Chicago, Dallas, Fargo, Houston, Los Angeles, Phoenix, West Palm Beach Total in Other Offices: 85 Contact: Robert Riesselman, (651) 634-7290

Firm Principals

Tony R. Litton, PE, CEM Dan Tollman

Sebesta Bloomberg is an engineering-consulting firm, providing engineering design, commissioning, eco-management, energy management, facility support, and owner's rep services to healthcare, higher education, government, and transportation markets.

Minnesota Zoo, Russia's Grizzly Coast, Apple Valley, MN; General Services Administration, Warroad Border Station, Warroad, MN: North Carolina State University Steam Plant (renovation/ expansion), Raleigh, NC; University of Minnesota Moos Tower Surgical Resource and Cancer Laboratories (renovation), Minneapolis, MN; Mayo Foundation Stabile Building (renovation), Rochester, MN; Indianapolis International Airport (midfield terminal project), Indianapolis, IN

SHORT ELLIOTT HENDRICKSON INC. (SEH)

3535 Vadnais Center Drive St. Paul, MN 55110 Tel: (651) 490-2000 Fax: (651) 490-2150 www.sehinc.com Established 1927 Other MN Offices: Brainerd, Duluth, Gaylord, Glencoe, Grand Rapids. Minneapolis, Minnetonka, Rochester, St. Cloud, Virginia, Worthington Total in MN Offices: 405 Other Offices: Appleton, Ashland, Boulder, Denver, Fort Collins, Lakewood, Pueblo, Chevenne, Chippewa Falls, Madison, Milwaukee, New Richmond, Rice lake, Sheboygan, Superior, Wausau, Lake County (IN), Omaha, Sioux Falls Total in Other Offices: 296 Contact: Michael Kraemer, CEO/Pres. (651) 490-2000

Firm Principals

Michael Kraemer, PE Nancy Schultz, AIA Dan Boxrud, PE Glenn Schreiner, PE Jim Newman, PE

Full-service professional consulting firm specializing in civil, structural, electrical, mechanical, traffic, transportation, environmental and waste resources engineering, architecture and landscape architecture; GIS; community planning and construction administration. Projects include municipal building, water, wastewater, highway, airport, flood control and industrial/educational/ institutional sector projects.

UMORE Park Development, Rosemount, MN; MCES Meter Stations Improvement Project; I-35W Access Project, MN; Central and Zachary Water Treatment Plant Expansions; Metropolitan Airport Commission's East Reliever Airports, MN

STEEN ENGINEERING, INC.

5430 Douglas Drive North Crystal, MN 55427 Tel: (763) 585-6742 Fax: (763) 585-6757 Email: steen@steeneng.com wwwe.steeneng.com Established 1993 Total in MN: 18 Contact: Eugene A. Striefel, (763) 235-4781

Firm Principals

Mark R. Brengman, PE Steven M. Youngs, PE Eugene A. Striefel

Steen Engineering provides mechanical and electrical engineering design from feasibility studies to preparing construction documents. Design experience includes corporate, municipal, medical, hospitality, institutional and retail. Providing HVAC, plumbing, fire protection, lighting, power distribution, life safety, automatic temperature control, energy and analysis and deficiency studies.

St. Joseph – Carondelet, St. Paul, MN; K&G HarMar, Roseville, MN; Crave-West End, St. Louis Park, MN; McDonalds, Nationwide; Skilled Nursing/Assistant Living Projects, Nationwide; Geothermal, LEED and Green Building

STORK TWIN CITY TESTING

662 Cromwell Avenue St. Paul, MN 55114 Tel: (651) 645-3601 Fax: (651) 659-7315 Email: info.tct@stork.com www.storksmt.com Established 1938 Other MN Office: Maplewood Total in MN: 70 Other Offices: Wausau, Des Moines Total in Other Offices: 13 Contact: Craig Stolpestad, (651) 645-3601

Firm Principals

Michiel Graswinckel Steven Ruesink, PE Mark Straight, PE Jay Hanson, PE Tracy Toepper Randy Schlegl

continued next column

Stork Twin City Testing is a member of the Stork Materials Technology network of independent laboratories, providing materials testing, product testing, failure analysis and consulting worldwide. Stork TCT specializes in construction materials and geotechnical engineering, concrete, asphalt, and masonry testing, building product testing, fastener and anchor testing, acoustic evaluation, chemical analysis, nondestructive testing, windows and doors testing, and more.

Runway 17-35, Taxiway C-D, and 2008 Taxiway P Reconstruction Projects, Minneapolis/St. Paul International Airport, MN; Target Technology Center II, Elk River, MN; Smith Avenue Transit Center, St. Paul, MN; Bottineau Boulevard and 63rd Avenue Park and Ride, Brooklyn Park, MN; I-494 Design-build Reconstruction Phase II (TH 5 to I-393); University of Minnesota Children's Hospital-Fairview (children's tower, and parking garage), Minneapolis, MN

STRUCTURAL DESIGN ASSOCIATES, INC.

10900 Noble Avenue North Champlin, MN 55316 Tel: (763) 560-5300 Fax: (763) 560-5400 Email: sda@sdaeng.com www.sdaeng.com Established 1989 Other MN Office: Brainerd Total in MN Offices: 6 Contact: Gregory J. Duerr, PE, (763) 560-5300

Firm Principals

Gregory J. Duerr, PE Mukhtar N. Giadee PE SE

Structural Engineers providing design, construction documents, reports, and construction administration services for projects in the educational, industrial (manufacturing, warehousing, equipment supports, and repairs), commercial, municipal, medical, and renovation fields. Services provided to Architects, Owners, Contractors, Developers and others.

continued next column

Rosedale Center (additions and renovations), Roseville, MN; Phalen Village Condominiums, St. Paul, MN; Woodbury-Eastridge High School, Woodbury, MN; Andersen Window Corporate Building #1. Bayport, MN; South Lake Minnetonka Public Safety Facilities, Shorewood, MN; CineMagic Atlantis Theatre, Burnsville, MN

TKDA

444 Cedar Street, Suite 1500 St. Paul, MN 55101-2140 Tel: (651) 292-4400 Fax: (651) 292-0083 Email: facilities@tkda.com www.tkda.com Established 1910 Total in MN Offices: 180 Other Offices: Chicago, Kansas City, Irvine, Tampa Total in Other Offices: 15 Contact: Thomas S. Stoneburner, PE (651) 292-4485

Firm Principals

William E. Deitner, PE Thomas S. Stoneburner, PE Jack W. Griffin, PE Kevin R. Cullen, PE Christopher E. Rand, PE John W. Ahern, PE

Full-service Facilities Division specializing in: industrial, education, renewable energy, government, heating, power and cooling, sports and recreation. Services: mechanical, electrical, structural, civil/site. architecture, interiors, landscape architecture. Systems: structural and architectural building systems, boiler and chiller, process piping, HVAC, plumbing, utilities, fire protection, power distribution, lighting, fire alarm, security, instrumentation and controls. Site: access roads, rail, parking lots, utilities, water supply, water and wastewater treatment.

Xcel Energy High Bridge (generating plant demolition0, St. Paul, MN; Cliffs Natural Resources (total mill ventilation upgrade, Ishpeming, MI; Dakota County Technical College (transportation and emerging technologies schematic design), Rosernount, MN; Olmsted County District Energy System "Green Pipes", Rochester, MN; I-35W St. Anthony Falls Bridge (design-build), Minneapolis, MN; AMTRAK (King Street maintenance facilities), Seattle, WA

VAN SICKLE, ALLEN (VAA, LLC)

2955 Xenium Lane North, Suite 10 Plymouth, MN 55441 Tel: (763) 577-9122 Fax: (763) 559-6023 Email: info@vaaeng.com www.vaaeng.com Established 1978 Total MN Offices: 62 Other Office: Hutchinson, KS Total Other Office: 2 Contact: Scott Stangeland, (763) 577-9132

Firm Principals

Keith W. Jacobson, PE, LEED AP Scott A. Stangeland, PE Kelsey F. Brown, PE, SE Mark D. Mielke, PE, LEED AP Jeffrey J. Schrock, PE, LEED AP David J. Galey, PE

VAA, LLC (Van Sickle, Allen) is committed to meeting the expectations of our clients, providing collaborative thinking, proactive communication, innovative solutions, and unparalleled service and support. We are engineering consultants providing structural and civil engineering services for commercial, corporate, retail, hospitality, education, civic, healthcare, wastewater, industrial, senior housing, and parking facilities.

American Medical Systems, Minnetonka, MN: Target Corporation, Nationwide; Sydney Hall, Minneapolis, MN; American Hospital, Dubai, UAE; Shaller Family Sholom East Campus, St. Paul, MN; Liberty Financial Building, Dakota Dunes, SD

WENZEL ENGINEERING INC.

10100 Morgan Avenue South Bloomington, MN 55431 Tel: (952) 888-6516 Fax: (952) 888-2587 Email: info@wenzelengineering.com www.wenzelengineering.com Established 1990 Total MN Office: 6 Contact: Lowell Wenzel, (952) 888-6516

Firm Principals

Lowell E. Wenzel, PE Patricia A. Cole, PE Jeff A. Segar, PE

Wenzel Engineering, Inc. is a structural engineering firm dedicated to understanding and meeting our clients' goals. Our experience includes new facilities, renovations, additions, and investigations for commercial, industrial, public, retail, educational, religious and healthcare clients.

Blue Lake Wastewater Treatment Plant Improvements; Twins Stadium, Minneapolis, MN: Gopher Stadium, Minneapolis, MN; McNamara Alumni Center (addition), Minneapolis, MN: Duluth Convention Center (addition), Duluth, MN: University of Minnesota (science teaching and student services building), Duluth, MN

WESTWOOD PROFESSIONAL SERVICES, INC.

7699 Anagram Drive Eden Prairie, MN 55344 Tel: (952) 937-5150 Fax: (952) 937-5822 Email: wps@westwoodps.com www.westwoodps.com Established 1972 Other MN Offices: St. Cloud (320) 253-9495 Brainerd (218) 829-1751 Total in MN Offices: 175 Other Offices, Rapid City, Overland Park Total in Other Offices: 18 Contact: Daniel Parks, PE, (952) 906-7435

Firm Principals

Dwight Jelle, PE Dale Beckmann Michele Caron, PE Ryan Gideon, PE Miles Lindberg, RLA Allan Klugman, PE, PTOE

continued next column

Westwood provides comprehensive sustainable solutions to land and energy development projects nationwide. Westwood's services include master/site planning, surveying, civil engineering, traffic, parking and transportation, environmental and permitting, Geographic Information Systems (GIS), cultural resources, landscape architecture, visualization, construction services, NPDES permitting and compliance, and renewable energy.

Gateway Mixed-use Master Plant and AUAR, Brooklyn Park, MN: St. Cloud Transit Signal Priority, St. Cloud. MN: Presbyterian Homes, Spring Park, MN: Sydney Hall/Dinkydome, Minneapolis, MN: Locust Hills Conservation Development, Wayzata, MN: Windsor Plaza (office/commercial mixed-use project). Eden Prairie, MN

WIDSETH SMITH NOLTING

7804 Industrial Park Road Baxter, MN 56401 Tel: (218) 829-5117 Fax: (218) 829-2517 www.wsn.us.com Established 1975 Other MN Offices: Alexandria, Bernidji, Crookston, Red Wing, Rochester Total in MN Offices: 142 Other Offices: Grand Forks, Sioux Falls Total in Other Offices: 13 Contact: Timothy Moe, PE, President, (320) 762-8149

Firm Principals

Don Anderson, PE Neil Britton, PE Tim Schoonhoven, PE Dave Kildahl, PE Mark Schoenfelder, LS Paul Richards, AIA

WSN is a fully integrated engineering, architecture, land surveying, and environmental services firm. Our engineering group includes civil engineering – primarily municipal and water resources, structural, project specific, industrial, bridges, mechanical/electrical/ HVAC, plumbing and lighting. Our complete team of over 150 employees solves a variety of design and construction challenges from planning through compilation.

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Greenwood Street Bridge, Thief River Falls. MN: Mille Lacs Academy, Onamia, MN: TH 2 - Wilton Bridge Replacement (design/build project), Bemidji, MN: Douglas County Pubic Works Facility, Alexandria. MN: US 14 Beltline Mill and Overlay Design. Rochester, MN Rattlesnake Bluff Trail System, Wacouta Township, MN

WOLD ARCHITECTS AND ENGINEERS

305 St. Peter Street St. Paul, MN 55102 Tel: (651) 227-7773 Fax: (651) 223-5646 Email: mail@woldae.com www.woldae.com Established 1968 Total in MN Office: 58 Other Offices: Palatine, Royal Oak, Denver Total in Other Offices: 19 Contact: Kevin Marshall, PE, LEED AP (651) 227-7773

Firm Principals

Michael S. Cox, AIA R. Scott McQueen, AIA, LEED AP Vaughn Dierks, AIA, LEED AP Kevin Marshall, PE, LEED AP Matt Mooney, PE, LEED AP Martin Stuart, PE

Wold Architects and Engineers provide a full range of services to meet the facility needs of public sector clients. Services include systems analysis, troubleshooting, options analysis, budgeting, project design, construction administration, project closeout and commissioning. Wold also provides w3E, a comprehensive facility management planning service group focused on energy, the environment and operational efficiency.

Dakota Communications Center, Empire, MN: Richfield City Hall, Richfield, MN: George W. Gibbs Jr. Elementary School, Rochester, MN: Washington County Campus (addition and renovation), Stillwater, MN: Spring Lake Park High School (addition and renovation), Spring Lake Park, MN: Orono High School (HVAC and maintenance renovation), Long Lake, MN

YAGGY COLBY ASSOCIATES

717 Third Avenue SE Rochester, MN 55901 Tel: (507) 288-6464 Fax: (507) 288-5058 Email: jrivas@yaggy.com www.yaggy.com Established 1970 Other MN Office: Eagan Total MN Offices: 65 Other Offices: Mason City, La Crosse, Delafield Total in Other Offices: 63 Contact: Jose Rivas, AIA, LEED AP, (507) 288-6464

Firm Principals

Jose Rivas, AIA, LEED AP Scott Samuelson, PE Christopher Colby, AIA Robert Ellis Michael Court, PER Terry McCarthy

Municipal, transportation, land development and building and site services including grading and utility plans, storm water management, water and wastewater treatment and permitting, traffic studies, bridge and highway design, geotechnical, mechanical/electrical engineering, structural engineering, landscape architecture, wetland delineation and environmental studies, topographical survey, ALTA survey and plats.

Peace Plaza, Rochester, MN; Rochester Community and Technical College (elevator replacement), Rochester, MN; Osage Public Safety Building, Osage, IA: Gift of Life Transplant House, Rochester, MN; Village on Third (multi-unit housing), Rochester, MN; 55th Street Extension, Rochester, MN It takes a village to design, engineer, and construct a great building. So let's give credit where credit is due.

Leonard A. Ford Hall

page 20

Location: Mankato, Minnesota Client: Minnesota State University, Mankato Architect: HGA Architects and Engineers

Principal-in-charge: Rebecca Greco, AIA

Project lead designer: Bill Blanski, AIA Project manager: Scott Thorpe, AIA

Project architect: Leigh Rolfshus, AIA

Project team: Nancy Blankfard, AIA; Sara Chicone; Paul Crosland, AIA; Stephen Peper, AIA

Energy modeling: The Weidt Group Structural, mechanical, electrical, and civil engineer: HGA Architects and Engineers Lighting design: HGA Architects and Engineers Interior designers: Doris Rolfshus; Liza Kapisak General contractor: Shaw-Lundquist Associates Cost estimating: CPMI Landscape architect: HGA Architects and Engineers Landscape project team: Zachary Bloch Laboratory consultant: RFD Acoustical consultant: Shen Milsom & Wilke Face brick: Ochs Brick Company Stone: Mankato Kasota Stone, Inc.

Cabinetwork: Haldeman-Homme, Inc. Window systems: Wausau Window and Wall Systems Concrete work: SLA Millwork: MNS

Photographer: Paul Crosby

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Dreyfus University Center

page 24

Location: Stevens Point, Wisconsin Client: University of Wisconsin-Stevens Point

Architect: Perkins+Will

Principal-in-charge: Jeff Ziebarth, AIA Project lead designer: Paul

Neuhaus, AIA Proiect manager: Larry Page, AIA

Project team: Jeff Stebar, AIA; Todd Lenthe; David Sheehan; Beth Latto; Jessica Raasch; Chris McKinnel; Jared Schmidt; Melissa Thate

Associate architect: SDS Architects Structural engineer: Computerized Structural Design, S.C.

Mechanical engineer: KJWW

Electrical engineer: Lang Associates

Civil engineer: Melchert Walkky

Interior design: Perkins+Will

Construction manager: Miron Construction

Landscape architect: Melchert Walkky Stone: Granicour

Photographers: Chris Barrett,

Hedrich Blessing; Paul Neuhaus, AIA

Folwell Hall

page 28

Location: Minneapolis, Minnesota

Client: University of Minnesota

Architect: Miller Dunwiddie Architecture, Inc.

Principal-in-charge: John D.

Mecum, AIA

Project manager: Denita Lemmon, AIA

Project architect: John Stark, AIA Project team: Melissa Ekman,

Assoc. AIA

Structural engineer: Meyer, Borgman and Johnson

Mechanical and electrical engineer: Ericksen Ellison & Associates

Civil engineer: Kimley-Horn &

Associates

Landscape architect: Damon Farber Associates

Roofing consultant: Roof Spec, Inc. General contractor:

McGough Companies

Roofing contractor: Berwald Roofing Company

Electrical contractor: Hunt

Electric Corporation Mechanical contractor: Metropolitan Mechanical Contractors Waterproofing: Spec 7 Group Face brick distributor: Metro Brick, Inc. Face brick: Glen Gerry Brick Terra-cotta: Boston Valley Terra Cotta Stone: Cold Spring Granite Window systems: Marvin Windows and Doors

Photographer: Gallop Studios

Health Sciences

page 30

Location: Minneapolis, Minnesota Client: Minneapolis Community & Technical College/MnSCU

Architect: Architectural Alliance

Managing principal: Peter Vesterholt, AIA

Design principal: Tom DeAngelo, FAIA Project designer: Marcelo Pinto, AIA

Project team: Duane Blanchard, AIA; Mamie Harvey, AIA; Kari Gullixson, AIA; Tim Guyette, AIA; Bob Zakaras, AIA; Joe Simma, Assoc. AIA; Steve Barker; Sharry Cooper; Beret Ek

Energy modeling: The Weidt Group

Structural engineer: Meyer, Borgman and Johnson

Mechanical and electrical engineer: Dunham

Civil engineer: Pierce Pini & Associates Lighting design: Dunham

Interior design: Architectural Alliance Owner's representative: Pegasus

Group, Inc. General contractor: CM Construction

Landscape architect: Close Landscape Architecture+

Landscape project team: Frank Fitzgerald; Jim Robin

Terra-cotta tile (rain screen): NBK America/Grazzini Brothers & Co.

Stone: Cold Spring Granite/Twin City Tile and Marble Co.

Cabinetwork: Innovative Laboratory Systems

Terrazzo flooring: Grazzini Brothers & Co.

Carpeting: Interface/Master Floors, Inc. Gypsum board and venetian plaster: Minuti-Ogle

Window systems: Wausau/

W.L. Hall Company

Architectural metal panels: Progressive Building Systems

Concrete work: Donald R. Franz Concrete Millwork: Paul's Architectural Woodcraft

Photographer: Paul Crosby

Julia A. Sears Residence Hall

page 34

Location: Mankato, Minnesota Client: Minnesota State University, Mankato Architect: Bentz/Thompson/Rietow

with Ayers Saint Gross

Principal-in-charge: Ann Voda, AIA Project designer: J. Eric Moss, AIA, Ayers Saint Gross

Project manager: Ann Voda, AIA

Project architect: Michael Segal, AIA

Project team: Hans Graf, AIA; Michael Segal, AIA; Christopher Willette, Assoc. AIA

Energy modeling: The Weidt Group

Structural engineer: Paulson and Clark Mechanical and electrical engineer: Ericksen Ellison & Associates

Civil engineer: BKBM

Civil engineer. DKDivi

Lighting design: Ericksen Ellison & Associates

Interior design: Bentz/

Thompson/Rietow

Landscape architect: Damon Farber Associates with Ayers Saint Gross

Landscape project team: Damon Farber; Scott Ferguson

Face brick: Metro Brick, Inc.

Stone: Mankato Kasota Stone, Inc.

Flooring systems/materials: Hiller Commercial Floors

Window systems: W.L. Hall Company

Millwork: Southern

Minnesota Woodcraft

Photographer: Philip Prowse

Location: Minneapolis, Minnesota

Principal-in-charge: J. Scott Radecic

Project lead designer: Jeff Spear, AIA

Project architect: Myron Chase, AIA

Project team: University of Minnesota;

Associate structural engineer: Erickson

Mechanical and electrical engineer:

Energy modeling: The Weidt Group

Structural engineer: Magnusson

Associate architects: Architectural

Project manager: Kevin Fast

Hines; Populous; Mortenson

Client: Regents of the University

TCF Bank Stadium

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of Minnesota

Architect: Populous

Alliance; Studio Hive

Klemencic Associates

Roed & Associates

RGV/LKPB Civil engineer: SRF Audiovisual design: WJHW Audiovisual consultant: David Braslau Associates, Inc. Building management and controls/ security design: HMA Consulting LEED consultant: BVM Engineering Life safety consultant: Howe

Engineers, Inc. Building commissioning agent:

Karges-Faulconbridge, Inc. Door hardware consultant: BMA Door

Hardware Consulting, LLC Conveying consultant: Persohn/Hahn

Associate, Inc.

Food service consultant: The Bigelow Companies

Geotechnical engineer: Braun Intertec Corporation

Lighting design: Lighting Matters Interior design: Architectural Alliance/ Studio Hive

Construction managers: Mortenson Construction; Thor Construction

Landscape architect: Populous

Landscape project team: Kobi Bradley; Jason Kanak

Precast thin brick: Gage Brothers Hand-laid face brick and masonry

stone: Northland Concrete & Masonry

Cast stone: Artstone

Cabinetwork and millwork: Paul's Architectural Woodcraft

Carpet flooring systems: St. Paul Linoleum & Carpet

Tile flooring systems: CD Tile and Stone Fluid applied flooring systems: Ram Construction

Window and curtain-wall systems: Harmon, Inc.

Architectural metal panels: MG McGrath

Ornamental metals: Standard Iron Seating: Irwin

Paints: Swanson & Youngdale

Gypsum assemblies: Mulchay Inc. Video board: Daktronics

Structural precast: Hanson

Structural steel: Le Junne, installed by Amerect

Electrical: Parsons Electric

Mechanical and plumbing:

Harris Mechanical Landscape: Arteka

Earthwork and piles: Veit & Company

Roofing: Berwald Roofing

Conveying: Schindler

Solid surfaces: Innovative Surfaces

Food Service: Hockenbergs Concrete site work: Mortenson

Cast-in-place structural concrete: Gresser

Photographers: Christy Radecic; Joey Terrill

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Interlock Concrete Products	47
Dennis J. Linder & Associates, Liability Insurance & Risk Management	52
MBJ, Consulting Structural Engineers	1
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PLACE

"What color is stainless steel? The answer depends on point of view. It was a vibrant mix of maroon and gold as I paused to make this image from the Washington Avenue Bridge at the University of Minnesota campus in Minneapolis. The brushed-metal exterior surfaces of the Frederick R. Weisman Art Museum offer an animated display of color and form, changing with movement, like the reflections on the surface of the water below. *Hmmm...what color is water*?"

-Photographer Paul Crosby

