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The Magazine For Stone Professionals

clad with a

Client: Minneapolis Public Library

Architect of Record: Architectural Alliance,
Minneapolis

Design Architect: Cesar Pelli & Associates,
New Haven, Conn.

Contractor: Mortenson/Thor, Minneapolis

Stone Subcontractors: Twin City Tile & Marble
Co., St. Paul Minn.
Grazzini Bros. & Co., Eagan, Minn.

Stone Suppliers: Vetter Stone, Mankato, Minn.
Tile By Design, Plymouth, Minn.
Architectural Granite & Marble, Austin, Texas

native look

By Todd Messelt

MINNEAPOLIS –

When the new Minneapolis Central Library opened to the public in May, it came more than 20 years after the first complaints about the need for an upgraded facility. Like most larger, public projects, the campaign to build a new library was a decades-long, on-again off-again affair that crested and waned with the crisscrossing tides of public opinion, political wrangling and economic reality.

The old Central Library, a 300,000 ft² concrete dinosaur designed in the International Style and completed in 1961, was coldly institutional, technologically obsolete and allowed browsing patrons access to only 15 percent of the library's books and media – a collection of roughly 3 million titles that's the third largest collection of roughly 3 million titles that's the third largest collection of any U.S. city.

In 2000, two-thirds of the city's voters approved a \$140 million bond to improve the city's libraries, with \$110 million dedicated to a new Central Library. A subsequent economic downturn and system-wide budget crisis nearly derailed the project, but a creative reshuffling of library resources saved it.

Through an exhaustive, publicly guided selection process, the Minneapolis-based firm Architectural



Alliance emerged as the project's architect of record. The firm included Cesar Pelli and Associates Architects (now Pelli Clarke Pelli Architects) in its design collaborative, bringing an element of star power to the design team and ensuring the city it would receive a signature building.

"When we started work on the library building, we very much wanted to reflect the structural diagram of the library and the clarity of its flexible use," said the project's design team leader, Bill Butler, a principal at Pelli Clarke Pelli in New Haven, Conn. "So as the column grid and

the floor slabs come out to the exterior elevation, we chose to clad the slabs in Minnesota Kasota stone."

Commonly referred to as Minnesota stone, large deposits of Minnesota Kasota stone line a 12-mile corridor along the banks of the Minnesota River between the southern Minnesota cities of Mankato and St. Peter. It's been quarried there since the mid-1800s.

As a magnesium-rich dolomitic variety of limestone, its strength and low porosity makes Kasota well-suited for both interior and exterior applications. The bulk of the stone's coloration is a light, golden-yellow, with a few other varieties tending toward grayish and pinkish hues.

Because of concerns involving foot traffic and floor maintenance during Minnesota's harsh winters, architects for the new Central Library in Minneapolis opted to use a harder, less-porous Egyptian limestone for the building's atrium. Those maintenance issues also affected the stone selection for the floor's inlay, *Ripple Effect*, by Lita Albuquerque. (Inset) The trees among stone at ground level are part of the building's drought-resistant vegetation plan, which also includes a "green" roof. (Photos by Tim Heitman)

There are plenty of examples of its use as a building material scattered throughout the Twin Cities region. One of the oldest is the majestic Stone Arch Bridge, a mid-19th-century structure crossing the Mississippi River in the historic Mill District of downtown Minneapolis. Another local landmark is the Minneapolis Central Post Office, a WPA-era Art Deco building. Recent projects include a handful of corporate campuses, government buildings and higher-education facilities.

But the largest and most highly visible Minnesota Kasota stone-clad building in the area is the 57-story Wells Fargo Tower (originally the Norwest Tower) in downtown Minneapolis, designed by Cesar Pelli. It's the city's third tallest building at 774' high, and is clad in approximately 197,000 ft² of Minnesota stone.

"During the process of working on the Wells Fargo building, Cesar had come to Minneapolis looking for a material that would fit within the city, had character within the cool northern light of the winter sky, and was unique to the region," Butler explained. "We spotted the stone on the old Farmers and Mechanics Bank (a late 19th-century building) in downtown Minneapolis. We liked the material and tracked down its source to discover it was regional."

Since Pelli first selected the material for that project, his affection for Minnesota Kasota stone has been a boon to Kasota, Minn.-based **Vetter Stone Co.**, which quarries about 600 acres of the Mankato-Kasota stone district and is one of three quarrying businesses in the region.

"Pelli's first project [using Vetter's Kasota stone] was the Wells Fargo tower in 1987, and since then he's done



(Above) The native Minnesota Kasota stone makes up the bands that separate the floors of the library building. (Lower left) The stacked stone outside the library effectively covers a rise in elevation. (Photos by Tim Heitman)

over a dozen projects," said Christopher Wedholm, Vetter Stone's director of sales.

"What it comes down to is color," he explained. "When architects sit down and envision a look for their building and they have a design intention that involves a buff limestone, most of the buff dolomitic limestones are in Minnesota. There are other states that have it, but the Vetter family's quarries have been doing it for more than 100 years."

So, in order to provide a sense of warmth and regional vernacular to the highly contemporary pair of glass boxes that comprise the Minneapolis Central library, Pelli chose a golden, Glacier Buff variety of Minnesota Kasota stone with a matching granite base of Goldstone from China.

With a mix of fleuri- and vein-cut pieces, the Kasota stone serves as a key identifying component of the building's envelope. Exterior bands of the hone-finished stone cleanly separate the building's five floors, with the graduated heights decreasing upwardly in correlation with decreasing traffic – "so the sectional heights of the building reflect the amount of traffic on each floor," Pelli's Butler explained. "The stone panels provide a visual contrast between the solid and the transparent ... the solidity of the stone creates a kind of strata."

The exterior bands of Minnesota stone connect to the building's window walls, he added, which comprise three types of glass: a clear, low-iron glass, a low-iron glass with a ceramic frit pattern, and a section of low-iron fritted glass set in front of a mirrored opaque glass panel with an insulated basking. The glass walls on each of the building's four facades contain a different frit pattern depicting abstract representations of local natural features: water, a snow-covered forest, prairie grass and birch trees.

"Of course, this was all a balancing in terms of budget," Butler added, referring to the 353,050 ft² building's conservative price tag. The overall project cost was \$138.7 million, with a construction cost of \$87.6 million – or \$248 per square foot. "We were happy in terms of the quality we were able to provide for the budget. I think this is one of the best-valued structures I've worked on."

Vetter's Wedholm estimated there are 12,000 ft² of Minnesota Kasota stone on the building's exterior – a total of 312 panels. Each panel – both the larger 6 ft² sections and the shorter end and corner pieces – comprises a configuration of 18 individual pieces of Minnesota Kasota stone. More than 5,600 pieces were cut by Vetter Stone



and shipped to Enterprise Precast in Omaha, Neb., for precasting.

“Getting the anchor slots for the anchor pins was critical,” said Wedholm. “With one anchor slot for every square foot, there were 40,000 holes at $\frac{3}{16}$ " by $\frac{3}{4}$ " deep with a tolerance of plus or minus $\frac{1}{64}$ ". Usually we can get away with $\frac{1}{32}$ " tolerance, but in this case we had $\frac{1}{4}$ " joints stone to stone, where industry standard is $\frac{3}{8}$ ". It was a tedious job with no room for error, and it turned out to be a perfect fit.

Although the same variety of Minnesota Stone had originally been selected for the atrium’s 7,500 ft² floor, the design team later chose Sylvia Gold limestone, a harder, less-porous, slightly crystallized limestone quarried in Egypt. Marketed by Chiampo, Italy-based quarrier **Margraf S.p.A.** as Giallo Silvia Oro, the limestone’s appearance closely mimics that of the exterior cladding.

“We wanted a similar palette of warm, glowing materials on the inside,” Butler said. “Along with the maple furnishings and all of the natural light, we were again trying to bring warmth and character to this grand civic building that wants to feel residential.”

Although Minnesota Kasota stone is used in floors throughout the region, the design team concluded that a more resilient surface would be needed for such heavy use. Given the region’s typically harsh winters, Architectural Alliance gives special consideration to the climactic impacts on stone floors in higher-use public buildings and has established a corresponding set of performance criteria guidelines,



Precasting the concrete panels for the building’s bands called for precise work; the tolerance of $\pm \frac{1}{64}$ " is twice as small as what’s often used. (Photo courtesy Enterprise Precast)

explained Ashley Ilvonen, an associate of the firm.

The two most-important criteria in selecting stone for high-traffic floors under these conditions, he said, are abrasion resistance and percentage of absorption by weight. Compressive strength and flexural strength – the other two leading indicators of overall strength – can usually be compensated for by thickness.

Architectural Alliance’s performance guidelines also had to be taken into account by Lita Albuquerque, a Santa Monica, Calif.-based artist whose stone inlay piece “Ripple Effect,” is set into the atrium floor. The artwork was inspired by the origin of the city’s name (“minne” means “water” in the Dakota language and “apolis” is Greek for “city”) and is



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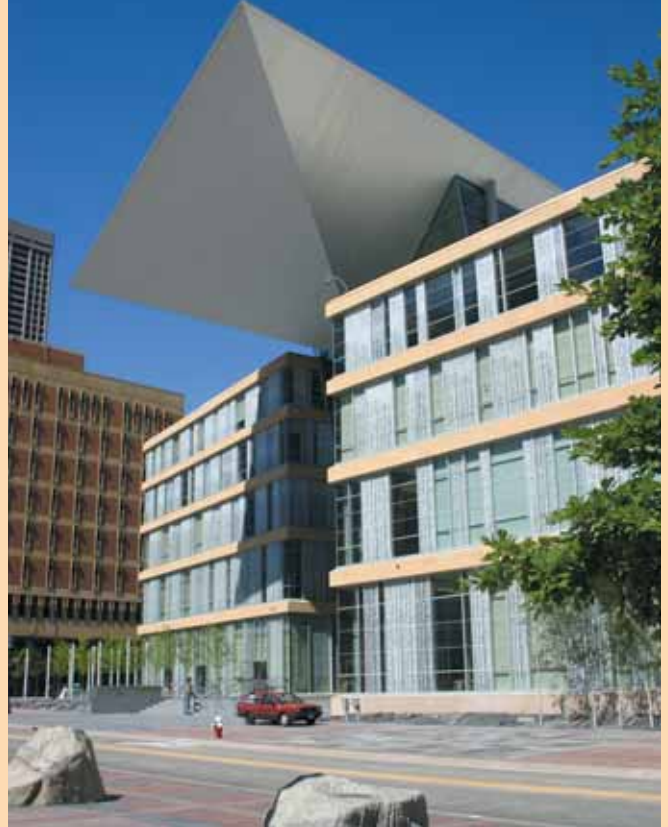
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meant to represent the rippling effect achieved by throwing a stone into water. Each of the work's five rings (ripples) is made of a different variety of intensely colored stone: three marbles (Giallo Reale, Rogo Alicante and Rose di Fleuri) and two granites (Shanghai Red and Shalimar Gold) intersected by lines of fritted blue glass.

Architectural Alliance and Albuquerque each sent individual sets of drawings to **Creative Edge Master Shop**, a specialty fabricator in Fairfield, Iowa. Creative Edge used a waterjet cutting system with a $32/100$ " stream impregnated with grit to cut the $3/4$ " thick blocks into thousands of floor pieces.

"It was a complex project," said Jim Belilove, president of Creative Edge, who estimated it took about two months to complete. "All of those blocks had to be cut to match with architect's drawings and the artist's features. It's a very big space, and if you get off a $1/4$ " one way or another, then it doesn't add up. Every piece was laid out at our place to make sure it fit, then numbered and packed in sequence so the tile contractor had an orderly way to manage it."

"It worked out great," said Joe Becker, vice president of Twin City Marble and Tile, the St. Paul, Minn., company that installed the floor. "All of the pieces fit together perfectly because of the water jet. Ten years ago, it would have all been cut by hand. We would have set up a shop at the job site and been cutting stone constantly. It would have taken at least two more weeks to do the job and probably cost about \$5 more per square foot."



The stone banding provides an interesting contrast to the glass panels decorated with scenes of Minnesota seasonal imagery, including water, snow, trees and prairie grass. Also, in at lower right on the sidewalk adjacent to the library, is George Morrison's *Tableau: A Native American Mosaic*; the city moved the granite artwork from another downtown location. The steel-truss roof "wing" symbolizes the library's larger presence in downtown Minneapolis. (Photo by Tim Heitman)

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Scattered throughout the library's rooms, the same Sylvia Gold limestone that was used on the atrium floor was also fitted to the tops of 50 small-sized end tables. Elsewhere, Minnesota Kasota stone was selected for the base of the library's four contemporary fireplaces located on the first four floors.

The library's countertops, all of which have a honed finish, include Giallo Topazio granite from **Campolonghi Italia S.r.l.** of Montignoso, Italy; Stoney Creek granite from **New England Stone LLC** of North Kingstown, R.I.; and Charcoal Black granite from **Cold Spring Granite Co.** of Cold Spring, Minn.

Cold Spring also supplied paving blocks for the building's exterior plaza, which serves as an extension to the city's adjoining Nicollet Mall, a nine-block, outdoor, retail plaza paved with more than 350,000 ft² of red and charcoal granite.

In addition, the City of Minneapolis moved a city-owned, 12-color granite sidewalk mosaic – *Tableau: A Native American Mosaic* – by Native American artist George Morrison from in front of the city's signature, 55-story IDS tower (four blocks south) to a location at the library.

The original location included some seepage problems through the artwork; its new spot at the library leaves it intact and dry. The mosaic includes 200 interlocking pieces of Cold Spring's stone, with some pieces depicting abstract representations of indigenous wildlife.

Todd Messelt is a Minneapolis-based freelance writer. ■



The Minnesota Kasota stone panels, according to one of the building's architects, "provide a visual contrast between the solid and the transparent." (Photo by Tim Heitman)

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