IMI CASE STUDY

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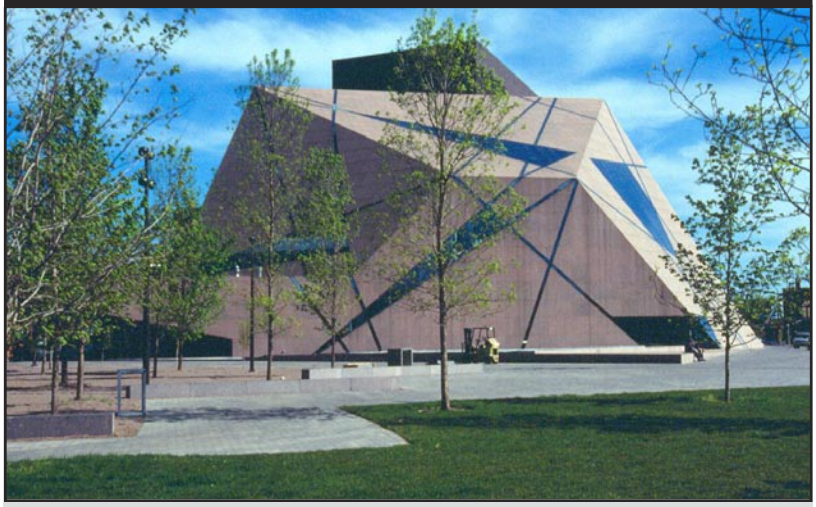
# McNamara Alumni Center
# University of Minnesota Gateway
## Minneapolis, MN



**OWNER/DEVELOPER:** University Gateway Corp.

**ARCHITECTURAL FIRM:** KKE Architects
Minneapolis, MN

**DESIGN ARCHITECT:** Antoine Predock
Albuquerque, NM

**GENERAL/MASON CONTRACTOR:** M.A. Mortenson Co.

**PROJECT MANAGER:** Kendall Griffith

**LOCAL UNION:** International Union of Bricklayers and Allied Craftworkers, Local #1 Minnesota

**AREA:** 230,000 sq. ft.

**LEVELS:** Six levels above ground
One basement level

**PROJECT COST:** $45 million

**CONSTRUCTION TIME:** March, 1998 to February, 2000

The University of Minnesota's striking 230,000 square foot McNamara Alumni Center is fulfilling a 43-year-old dream on the Minneapolis campus. The $45 million Alumni Center, also know as the University of Minnesota Gateway, serves as an entry point for welcoming students, alumni, visitors, donors and families to the campus.

The facility features an asymmetrical "geode" enclosing approximately 23,000 square feet of public space. The geode's exterior is covered with 40,000 square feet of rose-colored granite blocks weighing as much as 1,000 pounds each. Angled skylights within the design admit slanted rays of sunlight during the day and radiate beams of light at night.

Kendall Griffith, project manager from Mortenson Construction, describes the construction of the geode as "the most complex project I've ever worked on."

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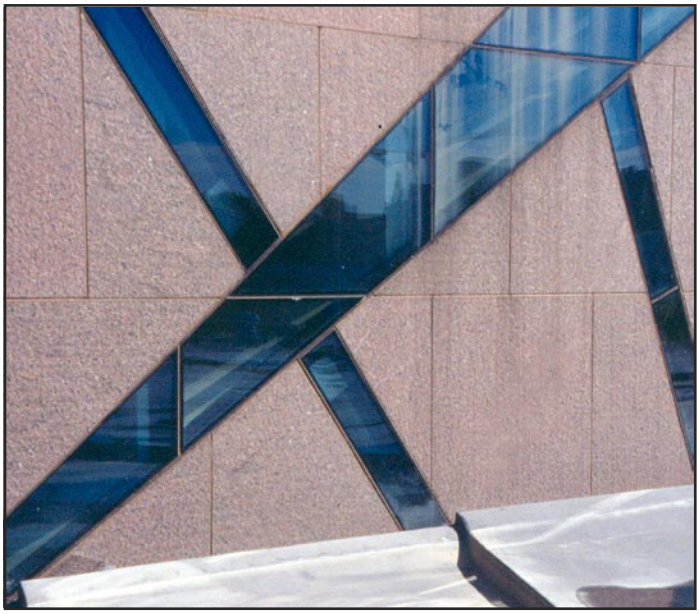
The asymmetrical structure has 17 individual surfaces, all sloping at various angles. Because of the complex geometry of the building and the tight timing on the construction process, field measurements could not be done. Each of the 2,200 granite blocks had to be pre-sized by the supplier. Stone fabricator Granicor worked from CAD drawings to make accurate cuts. The challenge to the craftworkers was making sure each of the pieces was in the right place, and that each one fit perfectly. Although the granite panels were nominally 5 feet square, 60 percent of them were individually shaped, and few had right-angle cuts. Craftworkers could make only minor adjustments to allow for the construction tolerances of the steel framework.

According to Griffith, since no two connections were alike and there was no repetition in beam size or length, the project involved the use of more than 1,000 shop drawings. They faced an additional challenge in designing a scaffolding system that would allow them to reach the work as it progressed.

The secondary steel structure that provides support for the granite consists of 4 in. square galvanized hollow steel sections spaced every 5 feet, and connected to the primary steel structure



by stub columns. This thermally exposed system accommodates the cyclic expansion and contraction of the steel. The 16-inch interstitial space between the granite and primary steel structure is equipped with drains to remove any moisture that penetrates the granite skin. In addition, a closed-loop system moves air through the space to prevent the formation of condensation that could cause rust.

Construction challenges weren't limited to the exterior of the geode. Inside there was another "jigsaw puzzle" to solve as reconstruction of the university's former football stadium arch began.

The arch, which was reconstructed by Engineered Wall Corporation of Lindstrom, Minnesota, weighs 68.6 tons and includes more than 7,300 bricks and 92 pieces of stone, all original pieces salvaged from Memorial Stadium when it was demolished in 1992.

Because of the interior's unique geometry, the 30 by 50 ft. arch leans forward by 15 degrees, which meant it couldn't be reconstructed in a conventional way. The bricks were transported to Engineered Wall Corporation, which had a lightweight precast system. The bricks were laid into latex mats, and the arch was put up in panels, with bricks glued over the seams to hide the joints and give the arch a monolithic look. The original stone medallion and frieze were placed at their actual depths in one of the 20 precast panels.

The completed arch, which is supported by structural steel and backed by concrete,

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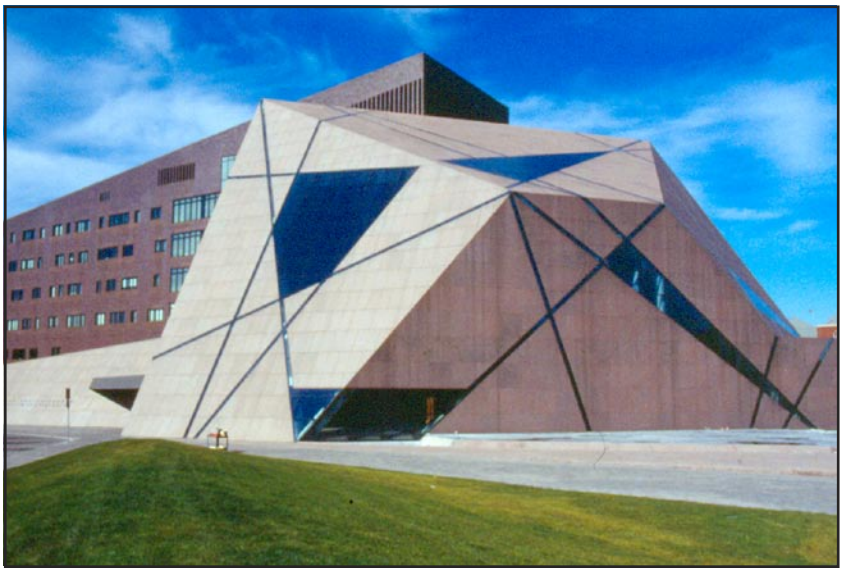
serves as the entrance to a 2,500 sq. ft. museum devoted to the university's 150-year history.

When designing the Alumni Center, architect Antoine Predock incorporated aspects of Minnesota's landscape, culture and traditions. In particular, a major formation on the north shore of Lake Superior known as "Split Rock," helped him to develop the "geologic inspiration" for the geode's design. The slope of the copper office block attached to the geode is reminiscent of the North Shore cliffs, and the interior of the 90-foot-high granite structure further reflects Minnesota's natural resources through the use of light wood, copper detailing and black terrazzo flooring.



*"The architecture of the Alumni Center honors the University of Minnesota by expressing its timeless qualities through the use of materials such as stone, wood, and copper, and by creating a dynamic gathering space that looks to the future."*

*- Antoine Predock*

Close teamwork, that included the early involvement of the contractor, is credited with keeping the project on its "fast-track" construction schedule. The contractor's involvement also allowed an ongoing assessment of the project against the budget, so that modifications could be made as necessary to keep costs on track. Financing for the $45-million structure came from private donations and University revenue bonds backed by rental income.



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