



The \$75 Million Pyramid



When the walls are also the roof, as in this pyramid-shaped office building, the panel system needs something extra.



Rising above the horizon outside Grand Rapids, Mich., is an unusual sight—a seven-story pyramid. The 573,498-square-foot structure is headquarters for Steelcase, Inc., a leading designer and manufacturer of office furniture. The \$75 million building will open this spring with 600 employees.

Steelcase, known as “The Office Environment Company,” spent more than eight months planning the design of the Corporate Development Center before the first architectural drawings were developed. With three organizational/environmental psychologists and other consultants, the interior was designed to encourage employee interaction and enhance the product development process.

Six floors will include labs, office space, and project rooms, with the top level set aside as mechanical space. Other features include upper floors ter-

raced with balconies, three levels with inner atriums, and generous use of windows throughout. The building peaks at 112 feet with a granite base supporting walls of grey panels and glass.

Since the building’s unconventional design means the walls are also the roof, exterior panels had to meet mechanical as well as aesthetic requirements. To meet that challenge, the owners chose a panel system from Alply Incorporated of DeKalb, Miss.

The Alply system includes insulated panels with a dry seal, a vapor barrier and, for Steelcase’s unique roof-wall structure, a drainage gutter. With stainless steel, copper, or color-coated aluminum as exterior facings—and an unlimited variety of panel sizes and shapes—the product can be customized for many applications and looks.

The project’s architect-engineer had several standard mechanical requirements for the exterior panels: condensation resistance, thermal movement at joints, resistance to wind and snow loading, acceptable joint patterns and panel flatness, and impact resistance.

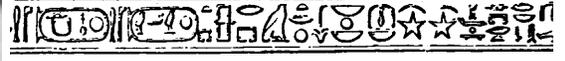
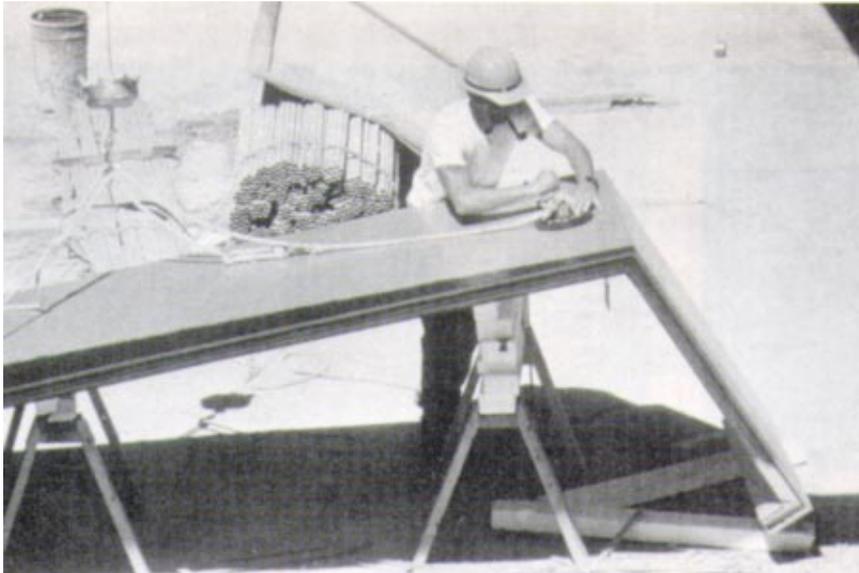
The Alply system met these criteria, while also offering a time-saving

“unitary system” that combines metal skins and insulation. To meet the 1989 completion deadline, the building had to be enclosed by November 1987. Therefore, a system that applied exterior surface and insulation in one pass was very attractive. The Alply system was the only one of several systems considered that included insulation as an integral part of the panel assembly.

Superior Insulating Value

The insulation material used by Alply in the Steelcase panels was “Trymer” rigid foam insulation from the Dow Chemical Company. A polyisocyanurate rigid foam, Trymer insulation offered higher R-values than other commonly used insulating materials.

“When we looked at insulation thicknesses for the desired R-value, Trymer offered savings in space,” says Alan E. Sleppy, president of Alply. “That’s an important consideration in



Using a special method, the panels are installed from the top down. In a method similar to procedures used by glass installers, ropes are fastened to a panel with suction cups.

fabricating panels for today's buildings."

The service temperatures of Trymer insulation range from -320°F to $+300^{\circ}\text{F}$, with several densities and compressive strengths available in the product line. According to Sleppy, the high strength-to-weight ratio of Trymer was an important factor in the production and performance of Alply panels.

"All panels require impact resistance, especially exterior panels," Sleppy says. "Trymer, along with the metal facing the job called for, provided the structural strength needed. The panels were strong yet lightweight, making them easy to handle and quick to install."

Sleppy explains, "Alply only makes custom panels. We don't limit our product line to stock items. We found Trymer insulation easy to handle and could be custom-cut and fabricated into an unlimited number of shapes or a pyramid-shaped building, it was important to be able to form panels into almost any three-dimensional shape—flat, curved, or angled."

In all, more than 30,000 board feet of rigid foam were cut into slabs for the Steelcase project.

The building's unique design required not only a high-quality panel system, but installation by a subcontractor who was experienced in all aspects of exterior construction. The architect-engineer and general contractor called in Architectural Building Products (ABP) of Kalamazoo, Mich., to work with Alply and develop a preliminary design and budget.

Exterior panels had to meet mechanical as well as aesthetic requirements.

Robert Rizzardi, president of ABP, explains, "Because of the size and scope of the Steelcase building, this job was a joint venture for ABP and Alply. We shared responsibilities and worked closely from engineering to completion. While installation was done by ABP employees, Alply had an onsite coordinator assigned to the project. The joint-venture approach was a requirement by Steelcase in obtaining this job."

Assembly and Installation

The Alply panel system on the building's exterior included a panel with mill-finish aluminum as the interior skin. A three-inch layer of Trymer insulation was adhered to the aluminum and topped with a layer of hardboard for impact resistance.

The panel's exterior skin, also aluminum, had a four-part fluorocarbon coating. For the project, a new color "KZF Grey" was formulated. Accent panels of maroon were run along the fascia of the balconies.

The exterior of the pyramid includes 3,000 panels of 71 different shapes and

sizes. They were trucked to the jobsite from Alply's plant and arrived numbered for sequence of installation. More than 110,000 square feet of panels cover the exterior of the Steelcase pyramid.

Panel installation began in April 1987 and was completed on schedule by November. ABP developed a method of moving the lightweight panels similar to the procedure used by glass installers. With suction cups and ropes, panels were raised to the floor above or lowered to the floor below. Installation began at the top level and moved down the building.

Panels were placed on a framework of galvanized steel. After the panels' gutters were engaged, a silicone sealant was applied. The back skins of the panels were then attached to the metal studs with a mechanical fastener. The final step was installation of a silicone gasket at the panel joints.

Alply panels were also installed inside the building around the atrium and escalator enclosures. A decorative metal spline was used instead of a silicone gasket.

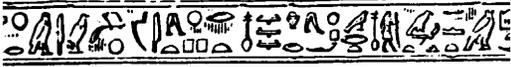
Rizzardi credits the smooth installation and on-time completion of the Corporate Development Center's ex-



Panels were engaged to adjoining panels with a male/female fit followed by a silicone sealant, applied to the joint.



Placement of a silicone gasket at the panel joints was the final step in installation of the panels. A lubricant was then sprayed on the gutter and a gasket is placed over it before the gasket was pressed into place with a hand tool.



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terior to good teamwork. “Coordination is critical in a project as unusual as the Steelcase building,” he stated. “Good teamwork results in good projects. All the parties involved in the job kept quality the top priority.” 

A total of 3,000 panel of 71 different shapes and sizes were installed on the building's exterior—over 110,000 square feet of panels.

