GLASS & METAL ALLIANCE

INNOVATION STUDIOS | DREXEL UNIVERSITY
PHILADELPHIA, PA

Glazier tricks of the trade ensure perfect glazing.

By: Amanda Gibney Weko

CASE STUDY

GMA Glazier
Eureka Metal & Glass Services, Inc.
Philadelphia, Pa.

Team
Architect: Coscia Moos Architecture
GC: Bittenbender Construction, LP
Structural Engineer: Cooke Brown

Scope
Customized interior glass partitions

Size
55,000 square feet

Completion
2017

"The cube" conference room photo © Paul Bartholomew

INTRODUCTION

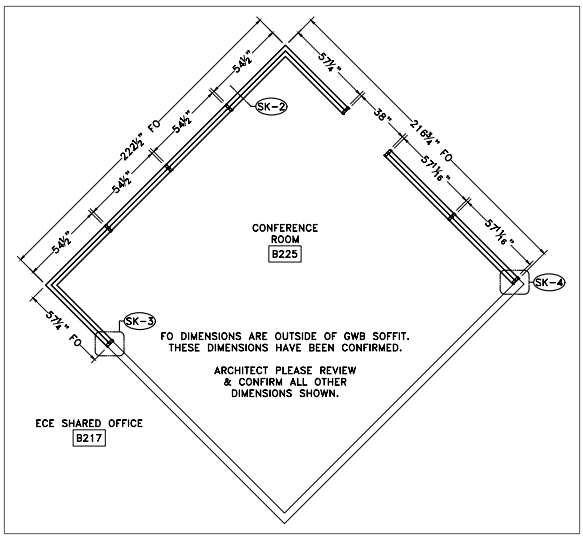
The Innovation Studios in Drexel University's College of Electrical Engineering feature laboratories, maker spaces, offices, and meeting rooms designed to encourage interdisciplinary collaboration among the school's undergraduates, graduates, and faculty. A 55,000-square-foot adaptive reuse of the former *Philadelphia Bulletin* production building transformed the space into an entrepreneurial environment, consolidating program spaces from different locations around campus to create a hub of creativity, craftsmanship, and collaboration. The Innovation Studios include equipment ranging from wet labs and welding tools to 3D printers and an electrical test lab.

MAKER SPACE

The Innovation Studios capture a growing trend toward maker spaces on academic campuses, and the design by Coscia Moos Architecture incorporates extensive glass to provide views to ongoing activity. "The use of glass helps shape the space and the experience by providing views and perspective," explained Coscia Moos Principal David Moos, AIA, who led architecture and interior design for the project. "It allows the younger cohort to see where their academic and future careers may be headed and helps the older crowd see where their academic journey began."

GLAZING SCOPE

GMA member Eureka Metal & Glass Services, Inc. of Philadelphia, Pa., performed the project's glazing scope, including glass fronts for over 30 offices, classrooms, labs, and meeting rooms. Eureka also designed and executed challenging glazing for "the cube," a glass-enclosed conference room in the shared graduate workspace. The cube features glass walls on two-and-a-half of its four sides, with the remaining wall space dedicated to a screen and writable white magnetic marker board glass. Ensuring structural stability of the 1.5-inch wide framing, while diminishing the effect of tempered glass bow at the very tall glass joints, were two main challenges.



Left: storefront office glass photo © Paul Bartholomew; right: "The Cube" plan © Eureka Metal & Glass Services, Inc.

According to Eureka Project Manager Beth Dykhouse, glaziers fabricated most of the project scope using the Wilson Partitions® glazing system with prefinished interior aluminum frames, doors, and sliders. Given the use of an off-the-shelf framing system to satisfy budget needs, the project required much coordination between Eureka, Coscia Moos, and general contractor Bittenbender Construction. "Many of the walls, including the cube, are over 10 feet high, and required internal reinforcement to provide adequate strength," Dykhouse said.

EXPERT TRAINING

In fact, when light-gauge interior glass framing systems first came to the region two decades ago, they were initially installed by carpenters. But the systems' inherent fragility required the involvement of glaziers. Philadelphia's Finishing Trades Institute conducted a rigorous training class - still held today - to ensure proper installation and modification.

Eureka President Terry Webb explained that early and ongoing training enables the region's glaziers today not only to install the systems but to help architects customize them. His company works regularly with Wilson and other systems, and his glaziers in the field understand inherent challenges and opportunities available through customization.

HIDDEN STRENGTH

At Drexel, customization was required to execute the cube conference room in particular. The transom above the sliding door measures 99 inches wide. The point where the side lite framing intersects the transom bar would eventually weaken over time with frequent opening and closing of the door. To reinforce this potential weak spot, Eureka constructed aluminum reinforcing members and inserted them into the vertical framing and horizontal header frame. The design process involved a few weeks of back-and-forth dialogue with the architect. Eureka even constructed a shop mock-up to become satisfied with the cleanliness of the T-connection detail. "We wanted to be sure it would hold up over time with university use," Dykhouse explained.

TRICK OF THE TRADE

Another tricky detail of the cube was preventing bowing in the 3/8-inch tempered glass due to the large spans. While the bow itself might not be visually apparent, the silicone caulk joint – likely to end up wider in some spots, narrower in others – would reveal the bow. To ensure cleanliness and uniformity of the 10-foot-high joints, Eureka glaziers clamped the glass in two locations before caulking between the clamps. After the silicone cured, the clamps were removed and great care was taken to trim cured caulk before carefully infilling the caulk. "These infill areas of silicone are often unsightly if great care is not taken," explained Webb. "You must trim the bottom and top of the cured caulk like a surgeon in order to provide perfect results for the customer."

TEAM EFFORT

Eureka put in a team effort to ensure quality and efficiency. To compensate for the project's tight time constraints, the team ordered all of the aluminum framing to be cut in the field; this allowed them to accommodate built conditions without needing to wait on reordered lengths. Glazier foreman Matthew Domanick led activities in the field, while Field Superintendent Bob Kloter served as liaison between the field and the office. From highly detailed drawings and close coordination with the architect to attention to quality in the field, the Eureka team executed what Drexel has called a "place to be" for young engineers.