

# A NEW LUSTER TO THE CROWN JEWEL CASE STUDY

HUGHES HIGH SCHOOL  
CINCINNATI, OH



 **GRAHAM**  
ARCHITECTURAL PRODUCTS



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*-Tim Davis, Window Design Consultant*

## + PROJECT SNAPSHOT

### Architect

Rex Hagerling, AIA, Moody Nolan Inc.

### Window Design Consultant

Tim Davis, AR Design

### General Contractor

HGC Construction

### Assignment

Design a six-story, 102,274 sf mixed-use academic building with a unique building footprint and a four story, segmented, radiused, inverted sloped feature wall.

## + CHALLENGE

**The renovation of Hughes High School**, built in 1908, required an array of windows that would replicate the original detail, sightlines, shapes, and finishes, while utilizing integral blinds to meet state standards. In addition, the replacement of 32 teardrop windows would demand the highest levels of out-of-the-box ingenuity.

## + NEW VIEWS OF HUGHES

Tim Davis, window design consultant for AR Design and a longtime Graham Architectural Products (GAP) representative, says experience has taught him one indisputable truth: When it comes to historic renovations, an architect can never talk to a window manufacturer’s rep too early.

Consider the renovation of Cincinnati’s Hughes High School. With its classic features, striking gargoyles and grotesques, and exterior terra cotta detail, Hughes was a traffic-stopping beauty. And with the meticulous and demanding Rex Hagerling, AIA, from Moody Nolan overseeing the renovation, the job proved a perfect match for Davis and GAP.

A different architect in a different school district, Davis said, might have trusted the job to a neophyte who would go on the web, pick a window and write a canned specification “without laboring over the kind of detail in the design that Rex labored over with me – and I labored over with GAP’s engineering people – for months before it bid.

“Those pre-bid conversations between the three of us made all the difference in the world in making sure the bid documents articulated the vision.”

There were hurdles. State standards require integral blinds for new school construction and renovation work as a way of eliminating the constant maintenance and costs that accompany mini-blinds in a student environment.

Said Davis, “We were at cross purposes with historic windows because there aren’t very many people who make a hung historic window with blinds in them. In fact, when we originally talked, Rex said to me, ‘I didn’t think you could get blinds in a hung window.’ I said, ‘Well, you can from Graham.’”

To make the windows historically accurate, GAP had to replicate the brick mold around the window with a custom extruded panning frame.

When Hagerling discovered photographs of the building from around 1920, he noticed the window sashes looked darker. He wondered if GAP could replicate that as well. Davis said, “Absolutely.”

Then there were the exterior lugs. Unlike some window companies that might look for a cheap workaround, GAP insisted on incorporating cast aluminum lugs.

“The fact that Graham will go to a casting company for decorative castings, that’s the kind of detail that identifies Graham as a premier company,” said Davis.

The Gothic top openings on some of the windows also required cast parts, as well as precise curving fabrication, which Graham engineered. Again, Davis contrasted Graham with companies prone to taking shortcuts: “Graham says, ‘Show us what the goal is and then we’ll decide how to engineer this.’”

Perhaps most impressively, Graham made 32 windows where the entire window was cast. The geometry of the frames – rounded on top with teardrop bottoms – “was too complicated to consider curving,”

Davis said. “I don’t know that anyone has ever done a completely cast window all the way around.”

A key to the project was Davis and Graham brainstorming ways to fulfill Hagerling’s wish list while meeting a straining budget. Rather than compromise quality, the team decided that adequate circulation could be ensured even if some windows were inoperable.

So Davis and GAP Engineer Jim Hicks dramatically reduced costs by designing simulated hung windows that don’t open and close, yet maintain historic integrity.

The team also designed a concealed anchorage system that accomplished two objectives: it allowed the owner to reinstall wood casing around the interior of the Graham window, thereby maintaining aesthetic warmth, and it increased the install rate.

Which brings us to the general contractor, HGC Construction. Said Davis, “HGC did a fabulous job of not only managing project, but also in the actual installation.

“In my 20-plus years of representing Graham over a four-state area, this is easily one of the top two or three projects that I’ve done,” he concluded.



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