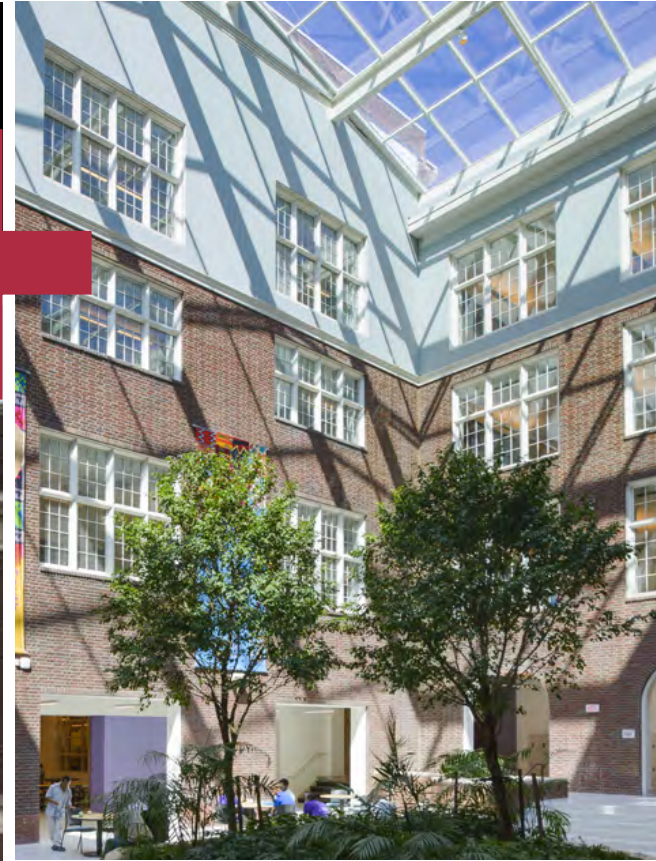


# WINDOWS OVER WASHINGTON CASE STUDY

FRANCIS L. CARDOZO HIGH SCHOOL  
WASHINGTON, D.C.







*“Graham met the challenge of not only satisfying our demanding aesthetic goals, but also the owner’s security and energy requirements.”*

*Gail Douglass, AIA  
Senior Associate, Hartman-Cox Architects*

## + PROJECT SNAPSHOT

**Architect**  
Hartman-Cox Architects

**Owner**  
District of Columbia Public Schools

**General Contractor**  
GCS Inc.

**Dealer / Installer**  
Heavy Commercial Window Consultants

**Window Design Consultation**  
Randy Boardman, Graham Architectural Products Rep

**Products**  
2200 Series Double-Hung, 6800 Series, 6500 Series

**Assignment**  
Help modernize a century-old high school, the longest continually-operating high school in Washington, D.C., through the design and manufacture of more than 1,000 historic replication windows.

## + CHALLENGE

A tight timeline and the need for historic approvals made this a challenging job for the Graham team.

## + AT THE HEAD OF THE CLASS

When the US Green Building Council’s Maryland and National Capital Region Chapters went looking for a place to hold their 2014 DC NoVA MD Green School Summit, one location stood out above the rest: Francis L. Cardozo Senior High School in Washington, D.C.

Built nearly a century ago and listed on the National Register of Historic Places, Cardozo had undergone a dramatic renovation. It reopened as Cardozo Education Campus – a state-of-the-art learning environment for the 21st century, with LEED Gold credentials. Adding to its strikingly fresh appearance were 1,100 Graham Architectural Products (GAP) windows, including a mix of S2200 Series double hung, 6800 Series, and 6500 Series.

The completed project was so extraordinary, the District of Columbia Historic Preservation Office/Office of Planning gave it the Historic Preservation Review Board Chair’s Award, citing “its exceptional design work in restoration, rehabilitation and new construction affecting historic District property.”

The building – the city’s longest continuously operating public high school – is a landmark in a city full of them. Built in 1916, Cardozo was designed by William B. Ittner, referred to by one author as “the most influential man in school architecture in the United States.” It sits on a two-square block parcel high on a hill, with breathtaking views of our nation’s capital and its monuments. But time had not been kind to it, and the District of Columbia Public Schools had not been able to maintain the building.

As a result, the necessary renovation was no small project. All told, it involved the complete modernization of 355,400 square feet of existing historic infrastructure and a 42,000-square-foot gymnasium addition. Compounding the challenge was the building’s inclusion on the National Register of Historic Places and the need for approvals from the Historic Preservation Review Board and the Commission of Fine Arts.

For window expertise, the design team turned to Graham because, as GAP window design consultant Randy Boardman explained, “Graham specializes in historic windows – AW-rated historic replication windows – and we do a lot of school and university work.”

Boardman was able to design a workable solution that featured custom panning delivered by Graham. And the Graham manufacturing team was then able to overcome a tight timeline, one that Lee Becker, FAIA, of Hartman-Cox Architects, described as, “Start-to-finish, design and construction, 18 months.”

Security specs, calling for a combination of tempered, laminated and insulating glass, added an interesting wrinkle. Gail Douglass, AIA, senior associate with Hartman-Cox, worked with Graham engineers “to figure out how to make new extrusions or use the existing extrusions in a different way to accommodate the glass and make these windows work.”

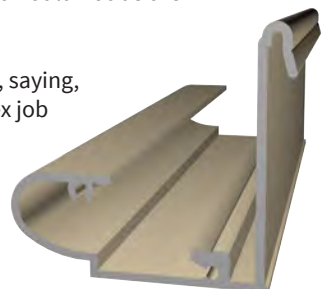
She added, “Graham met the challenge of not only meeting our demanding aesthetic goals, but also the owner’s security and energy requirements.”

Even with the time squeeze and the need for historic reviews, things went smoothly. As Boardman explained, “I deal with historic people all the time – National Park Service, Historic Preservation Review Board, the Fine Arts Commission, the Georgetown Board – all different people with different ideas, and we have submittals and mockups and struggles and challenges and tweaks ... but this one, we put our mockup in, and they blessed it. We were just part of the solution.”

Keith Walter, president of Heavy Commercial Window Consultants, said, “It was a very historic job with a tight schedule and we knew we had to get things done, so everybody worked together to pull it out.” He mentioned partnering with GAP on a number of previous projects and added, “Graham is an excellent company.”

Douglass, whose firm has also worked frequently with Graham, agreed, saying, “We believe the project would not be the same without Graham windows.”

Boardman wrapped up the discussion, saying, “Bottom line: This was a huge, complex job and even though it was a scramble, we helped to bring the project in on time. At Graham, we take good care of our clients. They get what they want, when they want it.”



*Custom panning design by GAP*





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