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1050 K STREET NW, WASHINGTON, D.C.

# JEWEL BOX

## SEAMLESS METAL ALLOWS A GLASS TREASURE TO SHINE

BY KJ FIELDS

A SLEEK, 11-STORY, blue glass mixed-use office and retail project gleams at the corner of 1050 K Street NW in Washington, D.C. Creating the building's streamlined effect appears virtually effortless to passersby, but it was carefully conceived and constructed to let glass dominate the scene.

Minimal architectural sculpting maximized the tenant space in the 140,000-square-foot building, but Washington-based Hickok Cole Architects wanted to provide more than a plain glass box. The designers angled the façades to frame the corner and created articulation through projected window trims and painted aluminum sunshades on the long west face of the building.

The trick to synthesizing the aluminum and structural cladding elements lay in specially fabricated, lightweight metal panels. They could be sculpted and painted the same color as the aluminum shades, structural features and window mullions so there was no differentiation in the palette. These subtle but important attributes give the structure its contemporary look.

"The materials maintain the language of color to tie the composition together," explains Jason Wright, associate at Hickok Cole. "Also, the fact that the metal could be sculpted lent a seamless quality to the project."



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## Panel Discussion

Washington, D.C.-based **Hickock Cole Architects**, [www.hickockcole.com](http://www.hickockcole.com), designed 1050 K Street NW in Washington. **Metal Sales & Service**, Kennett Square, Pa., [www.metalwerksusa.com](http://www.metalwerksusa.com), manufactured and conducted the installation of 20,000 square feet of solid 0.125-inch-thick Aluminum Plate Metalwerks Arcwall 1500 wall panels and custom enclosures.

The Arcwall 1500 panel system allowed the architect design freedom featuring a horizontal fascia that begins in the lobby, pierces through the point supported glazing system to the exterior, shoots up 10 stories and marries with the rooftop trellis and beam enclosure cladding. Metal Sales & Service controlled the steel tolerances on the rooftop trellis feature to provide a geometrically precise and architecturally pleasing cladding system.

## SMOOTH FINISH

In all, 662 metal panels totaling 12,400 square feet are incorporated into the project as exterior flat wall panels, beam wraps, column covers, tower element cladding and soffit panels. Every element of the building—even the window washer's station on the roof—is clad in the panels to maintain visual harmony.

Each panel is made up of solid 1/8-inch aluminum, mill-finished and then coated with an approved applicator to provide a clean, completed look to every piece. Metal Sales & Service, Kennett Square, Pa., welded corners and end caps so there were no bulky seams and welded pieces together to appear as one continuous line.

The panels stream vertically down on the exterior and move horizontally into the lobby to allow a play between the outside and inside of the building. The lobby's interior includes a mix of materials such as stone, wood ceilings and glass walls. Metal panels were used for part of the ceiling and the coffer around the perimeter of a dropped wood ceiling.

"There was a combination of many angles and joinery there," says Bob Anderson, manager of construction services for Metal Sales & Service. "With metal



as the finish element both inside and out, it's highly visible so it's got to be done right."

**TOWERING FEAT**

Washington has a building height limit of 130 feet, but the zoning allows project teams to extend certain elements beyond that restriction. Hickok Cole added an open metal tower element above the penthouse to give the building a larger presence. The tower also lends scale to the roof terrace, which prevents it from appearing lost and floating on the skyline. Wright says metal was lighter and much less massive than precast concrete, which provided the opportunity to create a longer span. Precast would have been too heavy and bulky to extend as far as Wright wanted.

Because the owner of 1050 K Street also was the general contractor, the architect and subcontractors had the opportunity to work together.

The cladding tolerances for the metal tower needed to be much tighter than that for the structural steel, so Metal Sales & Service's engineers designed the finish beam wraps

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and the cantilever of the corner panels on the tower. For aesthetic considerations, the cladding had to be plumb level—no more than a 1/8-inch variation for every 10 feet. Additionally, the corner was a higher wind load zone and the panels had to be supported with a steel cage on the inside to achieve the required windload resistance.

The engineers at Metal Sales & Service fabricated a gusset that attached to the steel tube of the tower element to hold the cladding. They detailed sections for Hickok Cole to approve, which cut down on the time needed to review shop drawings and gave the two firms a chance to work side by side in creating cost-effective alternate solutions for design challenges.

“Being able to collaborate with the architect and construction manager to devise solutions was one of the things that made the project so successful,” says Anderson.

The panels are easily curved and contoured, which proved valuable as a wrap on the 2-story steel columns outside the lobby. The column covers are composed of three

sections nearly 25 feet in total height. Each is just over 3 feet in diameter. The plate-rolled column covers offer smooth connections between the panels.

#### ENVIRONMENTAL FACTORS

The metal panels are manufactured from materials with high post-consumer and industrial content and are 100 percent recyclable after their useful life. This was another important factor as 1050 K Street was designed to meet high sustainable standards.

The building incorporates an urban bioretention system that decreases the flow of stormwater entering city drains. A rooftop garden helps reduce the heat island effect and captures rainwater. In the basement, a 5,000-gallon cistern collects water runoff from the sidewalk and condensation from the air conditioning system, which is used for irrigation on the site and roof. Peak irrigation demand occurs at the same time as peak condensation, leveraging the system.

An energy recovery wheel absorbs the temperature of the air leaving the building

and uses it to pre-treat the incoming air. Capturing the heat and cooling from the exhaust system lowered the building’s energy demands and allowed the team to install smaller mechanical systems.

Blue glass on the curtainwall reduces thermal gain tremendously because the color’s higher shading co-efficient and the glass’s low emissivity block UV rays. Combined with the exterior aluminum sunshades, the features allow the expansive floor-to ceiling glass to maximize daylight in the space without excessive heating. Inside, the insulated glass is clear so occupants do not perceive the blue color.

The building opened in October 2008, and its green building features brought another precious metal to the jewel box as 1050 K Street earned a gold certification under the LEED Core and Shell pilot program from the U.S. Green Building Council, Washington. ■

*KJ Fields writes about architecture and sustainability from Portland, Ore.*

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