CFSEI
COLD-FORMED STEEL ENGINEERS INSTITUTE

2020 CFSEI DESIGN EXCELLENCE AWARD WINNER

FIRST PLACE – MUNICIPAL – ADTEK ENGINEERS, INC. – BALLSTON QUARTER PEDESTRIAN WALKWAY, ARLINGTON, VIRGINIA

Ballston Quarter Pedestrian Walkway
4238 Wilson Boulevard
Arlington, Virginia 22203

Completed: December 2019
Construction Cost: $4.09 Million

East Elevation of Ballston Quarter Pedestrian Walkway. Photo courtesy of ADTEK Engineers, Inc.

Owner: Will Voegle, Forest City Washington

Architect of Record: Marco Ciccarelli, Studio Techne Incorporated

Engineer of Record for Structural Work: Miklos Peller, P.E., Peller & Associates, Inc.

Cold-Formed Steel Specialty Engineer: Michael Burkey, ADTEK Engineers, Inc.

Cold-Formed Steel Specialty Contractor: Chris Saunders, Maryland Applicators, LLC and Mike Stuart, Maryland Applicators, LLC

Award Entry Submitted by: Sumit Shah, P.E. and Andrew Newland, P.E., ADTEK Engineers, Inc.

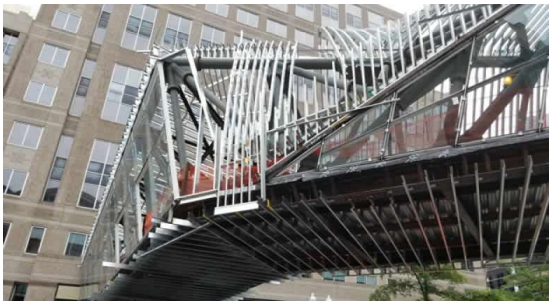
Project Background

West Elevation of Ballston Quarter Pedestrian Walkway. Photo courtesy of ADTEK Engineers, Inc.

The Ballston Quarter Pedestrian Walkway replaced the Festival Bridge, the original pedestrian bridge across Wilson Boulevard. Structural steel tubes support a waving zinc roof which enclose an interior space surrounded by glass curtain walls, a polished concrete floor and a faceted wood-look ceiling. The bridge is an artistic expression which also provides functionality by connecting the new Ballston Mall to the Metro station. This new 155-foot-long elevated walkway over Wilson Boulevard, which opened in December 2019, was an integrated public art and design project that gave ADTEK's specialty engineers uncommon challenges to overcome.

Design Challenges and Solutions

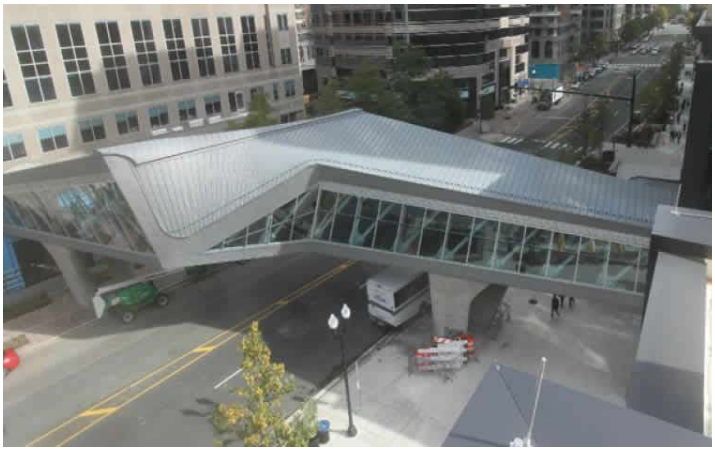
ADTEK's engineers designed the cold-formed steel structure with its unusual curved shape using conventional cold-formed steel framing as well as proprietary curved framing. Concave stud bracing was used to achieve the unusual curvature required. The challenge was that no two studs were alike at the top of the structure, which was the hardest curve to achieve. Countless cold-formed steel beams were used to bridge together all the curved studs. Given the complexity of the design, field challenges during installation of the walkway required on-the-spot solutions so that installation and budget deadlines could be met.



Exterior Picture of Curved Stud Profile and Soffit Framing Underneath the Bridge.
Photo courtesy of ADTEK Engineers, Inc.

At Ballston Quarter Pedestrian Walkway, unique profiles associated with structural steel and existing conditions presented unique problems. Cold-formed steel framing was integral in solving the issues presented.

Exterior Picture of Curved/Radius Studs Bent to Different Radius.
Photo courtesy of ADTEK Engineers, Inc.



Exterior Picture of Ballston Quarter Pedestrian Walkway – Completed.
Photo courtesy of ADTEK Engineers, Inc.

Interior Picture of Curved Stud Profile
and Roof Looking Up.
Photo courtesy of ADTEK Engineers, Inc.

Interior Picture of Box Beams Spanning Between
Circular Tube for Support.
Photo courtesy of ADTEK Engineers, Inc.