

Typical cross section of the cast-in-place concrete box girder showing the triangular void. All Figures: EXP.

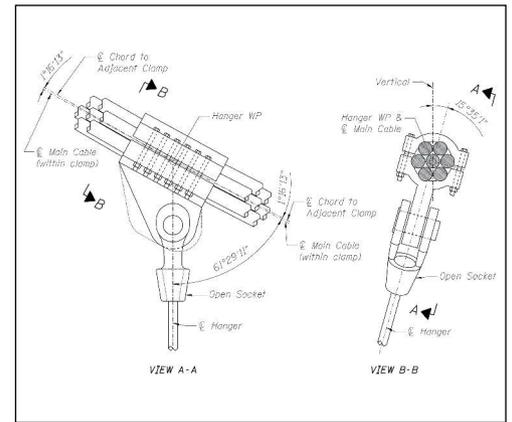
detract from the simplicity of the bridge form. To enhance the design's simplicity, the bridge has been left in its natural concrete state and only the steel pylon elements are painted.

The original design provided for a cast-in-place segmental scheme using form travelers for the superstructure to limit formwork requirements. However, the contractor chose to use a more conventional cast-in-place method—essentially building a bridge to build the bridge. An elaborate steel beam and tower falsework system was erected with a plywood deck to create a level working platform from which the contractor built the elaborate customized formwork system to place concrete for the superstructure. The concrete-placing sequence was broken down into five longitudinal castings with the bottom and top slabs of the cross section placed separately each time. To avoid erecting

and pulling formwork in the triangular void, the contractor used lightweight foam blocks that could stay in place as formwork for the top slab. The formwork and falsework were not removed until the main cable and hangers were installed and the bridge was self-supporting, and only then did the beauty and elegance of the final form become evident to the public.

### Conclusion

The 35th Street Pedestrian Bridge opened in November 2016 after more than two years of construction. This project was funded by a partnership of the City of Chicago, the State of Illinois, and the Federal Highway Administration. By its very nature, the project was more expensive than a traditional crossing, but the costs are justified by the bridge's unique design, architectural significance, and positive impact on the surrounding



Main cable-clamp detail at a hanger. All cables are ASTM A586 Grade 2 strand with Class A weight galvanized coating.

community. Because the bridge design pulls the pathway away from the roadway and railway, the crossing is relatively tranquil. Also, the curvilinear alignment provides ever-changing vistas for pedestrians to enjoy. Finally, the residents of Chicago's Bronzeville neighborhood have gained an essential link to the lakefront and a beacon for their community.

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### Reference

1. Burnham, D.H., and E.H. Bennett. 1909. *The Chicago Plan*. Chicago, Ill.: The Commercial Club. <https://archive.org/stream/planofchicago00burnuoft>.



## AESTHETICS COMMENTARY

by Frederick Gottemoeller

An underappreciated characteristic of a structure's alignment is how it aims the users' view toward a particular feature. The extreme case is a straight railroad track. When you look along such a track, you can hardly take your eyes off the distant point where the rails seem to come together. Straight bridges direct your eye toward whatever lies ahead along their tangent. In contrast, curved bridges sweep your eye over the landscape, so you must focus in turn on all of the features of the visual field. In the case of the 35th Street Bridge, that visual field is the expansive shore of Lake

Michigan or, going the other way, the architecture of the Chicago skyline.

The hanger arrangement, which supports the deck first on one side of the bridge and then the other, further directs your point of focus. When the hangers are seen together as you look along the bridge, they form a curved plane along the outsides of the curves, which encourages you to concentrate on whatever you can see from the inside of the curve. Thus, the hanger system subtly switches your focus from one side of the bridge to the other.

The sloped soffits of the triangular cross section make it impossible to judge the depth of the cross section at the section's apex. Travelers along Lake Shore see only the depth of the much thinner aerodynamic edge. To them, the bridge seems far thinner, and thus lighter, than it really is.

Finally, this bridge asserts a sense of unity. The angles of the tower legs, the hangers, the aerodynamic edges, the angles of the piers and the abutment walls, and even the stanchions of the railings are all sloped in the same direction and at similar angles. The curves of the tower legs emulate the curves of the suspension cables. Each part seems perfect for this bridge and would look out of place on another. This bridge is a masterpiece. The designers and the City of Chicago can be proud of having brought it into existence.