

structurally sound



STAR STATION

BEFORE JOINING AISC'S continuing education team this past November, Nathaniel Gonner worked as a structural engineer at Chicago firm EXP. One of his last projects was the city's Washington/Wabash "L" Station, which opened last August. The station replaced the Madison/Wabash and Randolph/Wabash stations, which both dated back to 1896.

Being located in dense, bustling downtown Chicago (aka "the Loop") elevated the project's complexity, as did the need for intricate foundation work to avoid impacting existing underground utilities and nearby building foundations. In addition, space for steel erection—which included replacing four 50-ft spans supporting the tracks—was limited primarily to the street while still needing to allow for pedestrian traffic.

In addition to these typical challenges of urban core construction, there was one issue that loomed above the rest: The existing steel, produced in the late 1800s, had to be connected with new, 21st century steel.

"The connection points didn't necessarily align with the regular building grid that we wanted to establish with the new structure, so designing and constructing connections that transitioned between the two was difficult," Gonner recalled.

The station's use of AESS creates a dazzling canopy. The white-painted steel framing illuminates the sky via embedded lighting in the tips of the canopy's ribs. Due to excellent synergy between architect and engineer—EXP served as both—the shape of the canopy was achieved by varying the slope and length of each successive rib, which produces an undulating effect without the need for curved glass or steel.

"The location of the Washington/Wabash Station called for it to be a gateway of sorts to Millennium Park and many other tourist destinations, so for the steel to be fabricated and erected to the standards of AESS was the ideal choice," Gonner said.

Waukegan Steel, LLC, fabricated the steel canopy and Munster Steel Company, Inc., fabricated the steel for the station's structural framing (both are AISC members). ■