

structurally
sound

UP AND OUT



IN THE JULY ISSUE (“First on the Block”) we showed you some seriously big steel being fabricated by Zalk Josephs Fabricators (an AISC Member/Certified fabricator) for the 150 N. Riverside project currently under construction in Chicago’s West Loop.

Throughout the summer, a crane—perched on a barge in the Chicago River adjacent to the project site and with a ringer rated at 660 tons—has been erecting steel for the building. But even with a colossal 30-ton lifting capacity and a reach roughly equal to a city block, it was still unable to lift some of the largest pieces for the project, and some of the parts that would typically be fabricated in the shop had to be left off and finished in the field.

A few weeks ago, a handful of AISC staff took a “field trip” to the project site (roughly a 10-minute walk from our office). What stood out most about the building was not its height (it will be 54 stories) but rather its impressive outward expanse. As the tower rises from its approximately 45-ft-wide base, the floor plan dramatically widens (at a 36° angle) on the east and west sides from the fourth floor to the eighth, where it reaches 125 ft wide and continues at this width to the roof; the narrow building plan at the base was designed

so that the building would fit between a set of commuter train lines and the river.

Several W36×925 mega-members were employed as diagonal struts to transfer the forces from the upper columns around the building’s perimeter inboard to the central concrete core; currently these members are the largest hot-rolled sections available in the world today. Appearing as “wings,” a series of horizontal struts are connected to the diagonal struts to balance out the thrust forces caused by redirecting the column forces inboard to the building’s foundation. Enormous embedded plates are used to complete the horizontal strut through the concrete core of the building. The diagonals are ASTM A913 grade 65, and there are columns higher on the perimeter of the building that represent the first use of ASTM A913 grade 70 in the U.S.

Given the difficulty of working on such large members and connections, Zalk Josephs performed a trial assembly of the strut members in the shop to ensure everything would fit up during erection. Through the last of the large base weldments, reports from the field are that fit-up has gone extremely well. ■