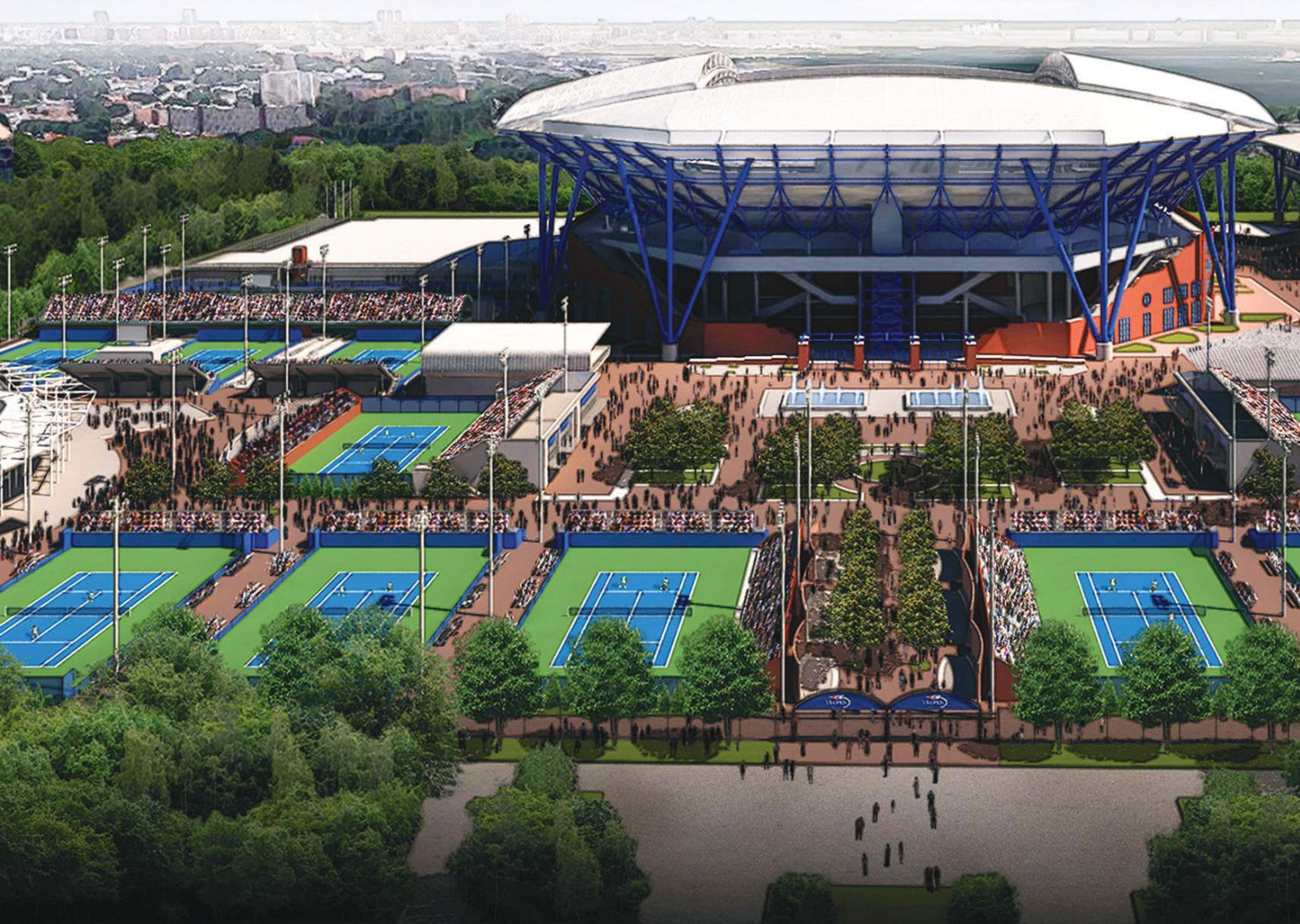


A GRAND SLAM TRANSFO

*With the expansion and renovation of the USTA's
National Tennis Center, the US Open now has a home
that is unrivaled in the world*
By Ashley Marshall



TRANSFORMATION



Raise the Roof

A 270,000-square-foot retractable roof on Arthur Ashe Stadium is just one of many facility upgrades coming to this year's US Open.

The capstone of the \$550 million expansion and renovation of the USTA Billie Jean King National Tennis Center in Flushing Meadows, N.Y. may be the retractable roof over Arthur Ashe Stadium, but that enhancement only scrapes the surface of the sweeping transformation that has taken place since construction crews first broke ground on the 42-acre site five years ago.

The retractable roof will be fully operational for this year's tournament, putting an end to rain delays inside the largest tennis stadium in the world. But also debuting when the tourney begins on Aug. 29 is the new 8,000-seat Grandstand located in the southwest corner of the site, along with 10 field courts that have been rebuilt from the ground up.

The entire South Campus has been extended and improved, and fans will benefit from a larger food court, wider walkways and more amenities than ever before. With the completed renovations, the US Open will be able to accommodate an additional 10,000 visitors per day, increasing overall annual attendance by approximately 100,000.

"This transformation highlights the continued growth of our sport on both national and global levels. It's more than just an investment in the US Open, it's an investment in tennis," says USTA President and US Open Chairwoman Katrina Adams. "We're committed to promoting and developing the growth of tennis across America, and the US Open and USTA Billie Jean King National Tennis Center increases our visibility from coast to coast."

COURTESY USTA



“The US Open competes in the most competitive sports marketplace in the world and our standard is to build the finest sports venue in New York and the best tennis facility in the world,” adds USTA Executive Director Gordon Smith. “I was a member of the USTA board when the strategic transformation was first discussed. To see it to fruition as executive director gives me great satisfaction.”

The ambitious project has not only been daunting in terms of the physical amount of work necessary, but also in terms of logistics—the construction site still has to host a Grand Slam tournament every year.

Here’s a closer look at how it’s come together:

Arthur Ashe Stadium

The new, 270,000-square-foot retractable roof is octagonal and required more than 5,500 tons of steel. The structure is supported by four catenary trusses, each 460 feet long, while the opening for the retractable roof is 62,500 square feet, making it the largest such opening of all the Grand Slam venues.

Sitting more than 150 feet above the ground, the two retractable panels that make up the roof weigh 1 million pounds each. When the decision is made to close the roof, five 30-horsepower motors turn each of the four winches (two on each panel) to pull the roof along 27-inch wheels on a track to the center of the stadium. It will take an estimated 500 kilowatts and five minutes to move the panels from the

east and west sides of the stadium to cover the court.

A high-tech polytetrafluoroethylene (PTFE) fabric stretches over the frame of the roof. New LED lighting will reduce energy costs while improving visibility, and an innovative cooling system will monitor and control humidity and temperature.

Grandstand

Similar to Court 17, the new 8,125-seat Grandstand, relocated to the southwest side of the grounds, is sunken 10 feet below ground level to create an intimate experience. (The old 5,800-seat Grandstand will be used as a practice court for this year and then demolished.)

A walkway around the upper bowl of the new Grandstand will allow fans to move freely, and a raised viewing platform will allow spectators to watch matches on neighboring Courts 8, 9 and 10. There also are eight new concessions stands, a picnic area and plazas surrounding the Grandstand.

Aesthetically, the design features a sun-shade canopy that

Heavy Metal
The new roof on Arthur Ashe Stadium was built with over 5,500 tons of steel.

arcs around two-thirds of the stadium and an exterior skin pattern designed to create the perception of peering through foliage. While the structure may appear to be circular, the design actually is a much more complex, 16-sided hexadecagon.

In order to make these projects possible, designers and planners have leaned on technology, 3D mapping and computer-aided design. The exterior skin features a total of 486 panels that would run the length of 13 football fields. Computer software was used to determine the geometry of these panel flags and to test thousands of possible combinations to ensure the best design.

The design and build of the new Grandstand also meets several important criteria toward LEED certification, a U.S. Green Building Council program that recognizes best practices. For example, the new Grandstand—made with 10 percent recycled material—will use LED lights to reduce energy usage by 15 percent and low-flow plumbing fixtures to cut water use by 40 percent. In addition, storm-water runoff will be treated before being discharged, the white roof will reflect heat to keep the stadium cool and an updated site-wide green cleaning policy will be employed.

South Campus

When the transformation is complete, more than 85 percent of the grounds will have been renovated. As part of this

project, the site's south boundary was pushed back 30 feet. By moving and realigning these courts, developers created a 450-foot-long, 40-foot-wide walkway between Court 17 and the new Grandstand.

For the 2016 tournament, 10 field courts have been completely renovated to provide more seating, ease congestion and enhance the overall fan experience. With the exception of Arthur Ashe Stadium, Louis Armstrong Stadium, Court 17 and Courts 4, 5 and 6, every tournament court has been torn up and replaced, increasing seating capacity by 36 percent from last year.

A new seating structure at Court 12 will increase capacity from 216 in 2015 to 1,378 this year. Courts 8, 9 and 10 in the southwest corner will hold 20 percent more fans following the introduction of raised seating behind the baseline, and nearly 600 seats have been added to Courts 13, 14, 15 and 16. Moreover, Courts 7 and 11 will each hold around 1,500 fans. A raised walkway will connect Courts 8, 9 and 10; another will connect Courts 13, 14, 15 and 16.

In total, 14 new food and drink stalls will open—six near Court 12 and eight near the new Grandstand. The mini food village by the new Grandstand will seat approximately 600 people (the existing food village seats 1,500). Court 7 will also feature a 36-foot-long oyster bar, twice as many restrooms as before, and four shops instead of two. ■

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