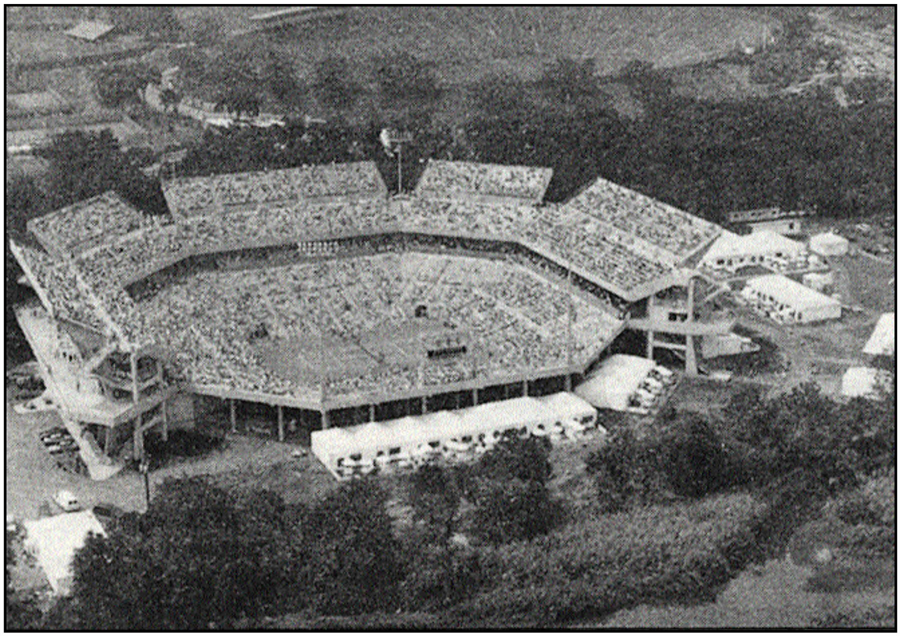
Precast required to meet tough winter construction schedule



Russ Adams Productions, Inc.

Construction of the $18-million stadium at Yale University began in September 1990 when the temporary facility that housed last year's tournament was cleared from the site.

To those settled back in the stands and basking in the warmth of the August sun at this year's Volvo International Tennis Tournament, the only fast-and-furious action to be seen was at courtside.

Little did the fans know that in the days, weeks, and months before the first ball was served the action was even more fast and furious to get the new officials of the Tennis Foundation of Connecticut Inc., the nonprofit group that owns the outdoor stadium, acknowledge that the decision to go with a precast, prestressed concrete structure was critical to getting the facility completed under a rigid timetable that could not be broken.

Indeed, construction of the $18-million stadium at Yale University could not begin until September 1990, when the temporary facility that housed last year's tournament was cleared from the site. A permanent structure for this year's tourney was mandated by Association of Tennis Professionals rules governing championship series with prizes in excess of $1 million.

Tennis Foundation of Connecticut executive director John DeStefano, Jr., says, "It was argued that, with a tight time schedule and limited funds, precast concrete offered the best alternative in terms of cost control, particularly sensitive during winter construction; appearance; and speed of construction."

DeStefano says executives of construction manager Fusco Corp. "made a persuasive case for an entirely precast structure. . . . It is likely that the decision to proceed with an entirely precast structure ensured delivery of the stadium on time, on budget, and with the highest standards of quality control."

Despite the inherent time savings commonly associated with a precast system, the decision to ultimately go with precast represented a switch from earlier plans calling for poured-in-place construction. Fusco officials and project professionals voiced their apprehensions over whether a poured-in-place structure could be completed within such a short, unbending schedule. They also were worried about unpredictable expenses for heating the site while pouring was under way in the winter. Their arguments convinced the Tennis Foundation to let out bids for a precast structure.

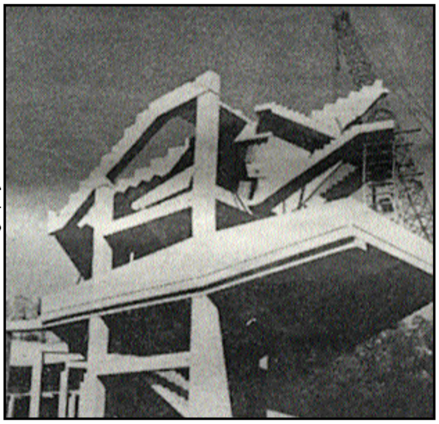
For Blakeslee Prestress Inc., the Branford, CT, company that fabricated and erected the facility's 1,660 precast members, the Connecticut Tennis Center proved to be one of the most challenging projects in its portfolio. It is also said to be one of the rare cases where the entire structure of a stadium employed a precast system—as opposed to the more standard practice of going with a steel frame and precast platforms and seating risers, or poured-in-place frame with precast seating.

The octagonally shaped building is described by project architect Joseph Weiss of Edward Larrabee Barnes/John M. Y. Lee, Partners as "a free expression of celebration and basic structure. Most stadiums hide their support structure behind externally imposed facades, but in this case the structure is the facade."

Blakeslee vice president Robert J. Vitelli says that the stadium's superstructure features an unusual cantilevered support beam design that calls for concrete members of up to 70 feet long.

Although the stadium's L-shaped pieces and planking were "fairly standard," says Vitelli, the company also had to supply five types of raker (stepped) beams, massive concourse beams, and

Clark Brodbent Photography



Precast concrete offers the best alternative in terms of cost control, appearance, and speed of construction.

trapezoid-shaped columns—all of which had to be fabricated in custom-designed molds.

"Because of the unusual shapes of the precast members and the tight overall schedule, detailed production and erection planning was necessary at the outset so forms requiring lead times of 10 weeks could be ordered," says Blakeslee president Mario J. Bertolini.

"The design team had to make decisions on a myriad of details during this period to allow approvals of form fabrication," he says. "To minimize setups in production and therefore minimize lost production time, careful scheduling of production in relation to erection requirements was necessary. The two 220-ton cranes and crews used for erecting had to work within a confined area. Due to that and the complex aspects of the design, there was no flexibility to change sequence."

Using the two crews, erection of the structure was completed over a 13-week period, giving Fusco's other contractors the time needed to finish other elements to meet the August 10 deadline.

"For durability, all connections that were employed were made within the precast members and grouted," says Blakeslee engineering manager Frank Nadeau. "Post- tensioning and splice-sleeve connectors were employed at the primary connection locations to meet seismic requirements. Tolerances using these types of connections are tight but the system went together very well."

The precast system afforded time savings well before the erection stage even began. Blakeslee was busy fabricating structural members in its plant while foundation and other site work was under way. ■

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