

EPSTEIN

ARCHITECTURE

ENGINEERING

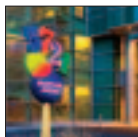
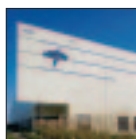
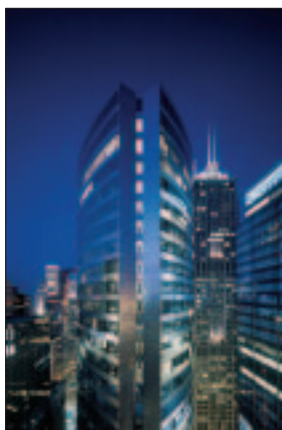
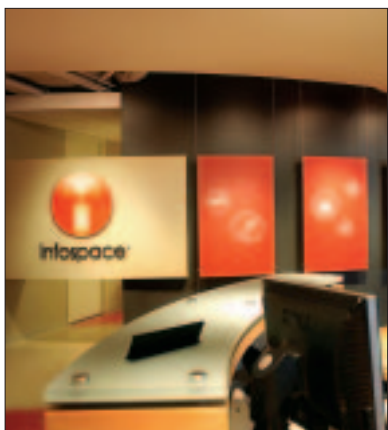
CONSTRUCTION

INTERIOR DESIGN

GRAPHIC DESIGN

Design Profile

MAY/JUNE 2006



Joga Bonito - Epstein and the Beautiful Game

Every four years the world becomes mesmerized by a sporting event that transcends all others. The Super Bowl, The World Series, The NBA Finals all pale in comparison to the spectacle that is The World Cup. This tournament which crowns the country with the greatest soccer team is currently taking place in Germany, and the final which takes place on July 9th, will be watched by over 1.25 billion people - or nearly five times The Super Bowl.

Most Americans view this event with minimal curiosity, but that is beginning to change due to a variety of reasons - the United States is getting much better (the team has qualified for the last five World Cups), there are more kids and adults playing the game and the U.S. has a professional league that is now in its 11th year of existence.

The Epstein organization is also doing its part to help soccer become a major spectator sport in the U.S. like it is in the rest of the world. On June 25th, Toyota Park, a 100-acre, 450,000 square foot soccer stadium and concert venue located in Bridgeview, Illinois will have its grand opening when the Chicago Fire hosts the New York Red Bulls. Epstein provided mechanical, electrical, plumbing, fire protection and civil engineering services for the design of this world-class stadium which will seat 20,000 and features 48 luxury suites, a soccer pub, food courts, retail displays, a press room, training rooms, four locker rooms and meeting rooms. In addition to serving as the playing grounds for the Fire, the facility is also the club's home office and training grounds. Toyota Park will also be used for hosting outdoor concerts and festivals with expanded seating accommodating 28,000.

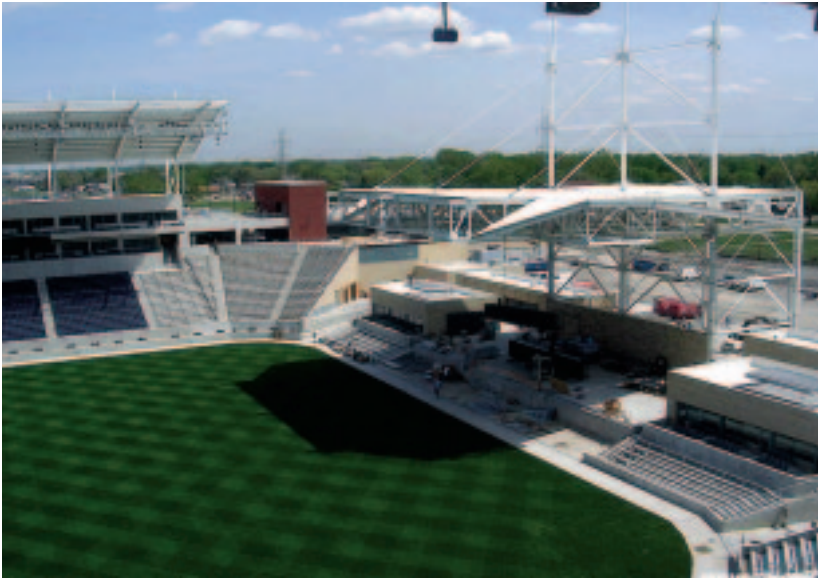
Epstein worked with Rosetti Architects, the architectural designers of the complex, Anshultz Entertainment Group, the owners of the Chicago Fire, Turner Construction, the general contractors and the Village of Bridgeview.



Toyota Park

BRIDGEVIEW, ILLINOIS

Epstein's plumbing engineers faced a unique challenge when designing the domestic water system for the stadium. All the traditional major US sports have multiple breaks/timeouts which allow fans to get food, stretch, and for many a chance to visit the washroom. Soccer poses a problem because the matches offer continuous action for 45+ minutes per half with no timeouts or commercial breaks. This means Epstein engineers had to design a water system that could handle the water demands of 20,000 fans all taking a 15-minute break. This event was dubbed the "Superflush," which required that the water system be able to handle 1,100 gallons per minute (gpm) as opposed to the code requirements of 400 gpm. This system is also comprised of 20 electric water heaters capable of producing 2,000 gallons per hour (gph), four gas water heaters with a capacity of 2,500 gph and two hot water storage tanks that each can hold 3,000 gallons.



The stormwater drainage system for the stadium required that Epstein civil engineers develop some unique solutions. The elevation of the soccer field is lower than the surrounding grade outside the stadium, which created a difficult design situation for collecting field drainage and routing it to the required detention facility. The engineering design consisted of creating an underground storage piping system consisting of four 54" long, 10' diameter pipes buried over 10 feet below ground. This system was designed to temporarily hold the stormwater until it reaches levels where it is pumped out by a triplex-pump system that discharges into a pipe, which conveys the stormwater to the proposed detention pond.

Additionally, surrounding the north and west sides of the stadium is a 20' high berm that connects the top of the pavilion slab to the plaza area surrounding the stadium. This connection required an extremely steep slope which also created a concern with stormwater runoff. A drainage system consisting of scupper drains, subsurface drainage pipes surrounded by aggregate trenches was designed in order to collect this stormwater and prevent it from running off into the plaza walkways.



Toyota Park also posed many mechanical and electrical challenges for Epstein's engineers. The facility has a variety of functions and spaces including a field, stage, restaurant/club, private and party suites, video rooms, audio and PA rooms, press rooms, media/interview rooms, training rooms, lockers, hydrotherapy rooms, retail, concessions, commissary and kitchen, offices and conference rooms, boiler room, storage, and receiving docks.

All of these spaces require specialty systems to provide sport lighting, sport audio/visuals, show audio/visuals, field heating, field watering and aeration, and flood water pumping. The lighting for the stadium has especially sophisticated systems to provide ample outdoor lighting for the stadium bowl, façade, signage, walkways, roadways, and parking. The bowl itself requires unique solutions for games, when maintenance work is being performed, as well as for general emergencies.

In the end, Epstein's engineers designed systems that provide over 6500 kVA (including 650 kVA emergency power) comprised of 2,100 kVA for food services, 1050 kVA for mechanical requirements, 800 kVA for sporting audio/visual demands, 750 kVA for concerts, 530 kVA for sport lighting and 1,000 kVA for general lighting as well as 200 kVA for ancillary functions.

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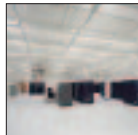
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