

## **Heldenfels Enterprises huddles for 30,000-ton Cowboys stadium contract**

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San Marcos, Texas-based Heldenfels Enterprises has begun production of precast/prestressed members for the 2.3 million-sq.-ft. Dallas Cowboys Stadium in Arlington, Texas. Scheduled for a 2009 season opening, the project is the largest National Football League venue ever, with a fixed seating capacity (stadium and suites) of 80,000, and ultimate capacity of 100,000 (add-on seating and standing-room-only areas).

With a projected cost of \$1 billion-including the city's share, capped at \$325 million-the project is modeled after the Dallas Cowboys' longtime home, Texas Stadium, and will feature two monumental structural steel arch trusses spanning 1,290 ft. and supporting a massive retractable roof and 60-yard video screen. The quarter-mile-long arches are said to be the longest single-span structures of their kind in the world, while the two-sided video screen will measure 50 ft. high and weigh about 600 tons, making it the world's largest. With three levels of club seating, five decks of suites, exterior end-zone plazas, a 17,000-sq.-ft. Hall of Fame, and 10,000-sq.-ft. Pro Shop, the new Cowboys Stadium wasn't designed just as a football arena; it functions as a fully realized sports complex, project principals contend.

Heldenfels President and CEO Fred Heldenfels IV notes that the project is his company's largest stadium contract to date, and is the second job where it has been tapped for precast/prestressed production and erection by Oklahoma City-based Manhattan Construction Co. — following the (2001-03) Houston Texans' Reliant Stadium. Heldenfels estimates that the Cowboys Stadium project will use about 300 more pieces than the Reliant job, and roughly 1,000 additional yards of material.

Heldenfels approximates the total number of pieces his company will supply for the Cowboys Stadium job at just under 3,000, including 1,839 seating risers, 880 wall panels, 165 stair risers and 109 flat slabs. He adds that the wall panels will probably be cast with a self consolidating concrete or high-slump flowable mix design. Total cubic yardage is estimated at 14,000, or 30,000 tons of product, according to Heldenfels, who says the stadium is his company's largest contract ever in terms of dollar value and concrete volume.

### **GOING DEEP**

Bryan Trubey, principal designer, HKS Architects, designed the new stadium (he is also working on a new stadium for the Indianapolis Colts), while the firm's Craig Stockwell acts as project manager. “We had to dig 50 feet in the ground to set the field, because the soil is fairly sandy,” Stockwell explains. “That's unusual for the Dallas area, which is usually clayish in its soils. We had to do a 8-in.-thick gunite and soil nail configuration as a retention system. We're close to ground water here, and with single-sided form work,

water became an issue. The soil nails had plates on them, and the foundation walls literally hang on the plates.”

The stadium's arches are molded directly into the floor to minimize structure weight. Since the floor of the building extends into the area's water table, a drainage system was established to pump excess water to the surface. Water flows into drain tanks, which then pump it out to street level.

Stockwell says much of the stadium's cast-in-place concrete will entail standard pan joists and columns. CapForm Inc. of Carrollton, Texas, is doing the pan form work and placing reinforcing steel; Hamilton Form Co. is supplying precast formwork.

The Cowboys Stadium contract coincides with Heldenfels Enterprises' adoption of Lean Manufacturing techniques. First popularized by Toyota, the Japanese-style philosophy is known for its focus on reduction of wasteful steps in the manufacturing process. Efficiently and economically producing quality products, less human effort, less time for product development, and less space are required. The Heldenfels team implemented a supermarket-style storage system and a grid system in its finished goods storage area, making certain products easier to find and minimizing crane movements and labor involved in storing and retrieving materials.

The 3,000-piece Cowboys Stadium order will provide Heldenfels crews much opportunity to measure Lean Manufacturing principles. With site prep work beginning in January, the company's first phase of the job begins this month and will continue through April 2008, with the erection of second phase set for completion by September 2008. Heldenfels' main subcontractor is Precast Erectors Inc. of Colorado.

In addition to the Texas NFL venues, Heldenfels has logged six other Lone Star State sports facilities since the late 1990s, including the San Antonio Spurs' AT&T Center and Houston Rockets' Toyota Center.