Celebrating Mexican Soccer Past, Present, and Future

Placing shotcrete for the first-ever Mexican Soccer Hall of Fame

By Kelly Blickle

Known as the "Cradle of Mexican Soccer," Pachuca, the capital of the Mexican state of Hidalgo, opened the doors to the first-ever Mexican Soccer Hall of Fame (Salón del Fútbol Nacional e Internacional) and the Mundo Fútbol, an interactive museum devoted to Mexican soccer, in July 2011. An Allentown high-pressure shotcrete/concrete pump and a shotcrete spraying machine sprayed 523 yd^3 (400 m^3) of shotcrete for the historical, soccer-ball-shaped Hall of Fame.

The Hall of Fame is comprised of three levels of various galleries and pictures that represent the country's soccer evolution since 1901, when the city founded Mexico's first club; while the Mundo Fútbol encourages visitors to experience the emotions and sensations specific to the game of soccer. The museum is located next to the Hall of Fame.

During the inaugural ceremony for the buildings, key figures in attendance were in awe of what they saw and experienced. Attendees included Mexican President Felipe Calderón and his wife, Margarita Zavala; FIFA President Joseph S. Blatter; President of the Mexican Football Federation Justino Compeán; President of Pachuca Football Club Jesús Martínez; Hidalgo's Governor Francisco Olvera Ruiz; and Chilean President Sebastián Piñera.


The historical soccer-ball-shaped structure stands 125 ft (38 m) tall and is 98 ft (30 m) in diameter

"Participating in an event of this magnitude, in which the subject is football in its purest sense, is like being a part of the history of the game. What I have seen here is simply spectacular," commented Blatter (Fifa.com, July 10, 2011).

Building a Nation's Pastime

Spearheaded by the Pachuca Football Club, the Hall of Fame stands 125 ft (38 m) tall and is 98 ft (30 m) in diameter. It was first erected with steel, then covered with PANEL W® (a building system based on a tridimensional structure of steel wire with a polyurethane or polystyrene nucleus) and finally sprayed with shotcrete on both the interior and exterior.

The shotcrete equipment contractor for the project supplied the Thom-Katt® high-pressure shotcrete/concrete pump and the Aliva® 263 shotcrete spraying machine for the project, which both arrived on site in February 2011. Together they covered the 53,820 ft^2 (5000 m^2) surface area (both interior and exterior) of the Hall of Fame with 523 yd^3 (400 m^3) of shotcrete.

"Shotcrete was chosen because it allows for fast application and covers more square feet (square meters) than any other system. On average, we sprayed about 4 yd^3 (3 m^3) per hour, which equals to 646 ft^2/h (60 m^2/h)," noted Ing. Raúl Bracamontes, Civil Engineer and Director of the concrete pumping contractor. "In addition, less people are needed to spray the shotcrete as compared to other placement methods, ultimately increasing the cost efficiency of the job."

The high-pressure shotcrete/concrete pump was chosen to place wet-process shotcrete for the exterior of the structure and the shotcrete spraying machine was chosen to place dry-process shotcrete for the interior of the structure. Both units applied the shotcrete at the same time to expedite the application process.

The features of the trailer-mounted high-pressure shotcrete/concrete pump made it ideal for the sprayed shotcrete exterior.

"It has a very smooth stroke and features the least pulsation of any shotcrete machine available today," explains Bracamontes. "We were able to operate it at a very low output, making life easier for our nozzleman. In addition, this machine is capable of spraying up to 17 yd^3/h (13 m^3/h) at 2000 psi (13.8 MPa), which is very important to us because it provides the flexibility needed for the different types of jobs we're on.

"It's also very robust, allowing us to pump the shotcrete an impressive 131 ft (40 m) above ground level, which has been a huge advantage to us because of this structure's height."

An on-site mixer fed the shotcrete mixture into the high-pressure shotcrete/concrete pump's large 9.5 ft^3 (270 L) capacity hopper. "The shotcrete mix for both the interior and exterior was a standard mix, with its compressive strength reaching 2844 psi (200 kg/cm^2) in 28 days," says Bracamontes. "The large-capacity hopper made the project even more efficient because it could hold such a large amount of material."

The high-pressure shotcrete/concrete pump placed wet-process shotcrete on the exterior of the Mexican Soccer Hall of Fame

The shotcrete spraying machine was chosen to place the shotcrete for the interior because Bracamontes and his team were able to set it up inside the structure and mix on site, which reduced the amount of hose required by 230 ft (70 m).

Crews paint the Mexican Soccer Hall of Fame

"With this setup, we were able to reach from one end to the other," notes Bracamontes.

The contractor completed the application of the shotcrete in May 2011.

Bracamontes says his team's experience working on the Hall of Fame will be one they won't soon forget. "It was an honor and a privilege to help build a structure that pays tribute to such an important piece of Mexico's history and pride."

Confident from the Start

Founded in 2005 and based out of León Guanajuato, Mexico, this was the concrete pumping contractor's first time spraying shotcrete for a circular-shaped structure. Even though this type of job was new to the contractor and his team, Bracamontes knew from the beginning that his crew and the chosen equipment would make a winning combination for this project.

"When I first met with the shotcrete equipment manufacturer, I had the opportunity to visit their facilities and was impressed immediately," notes Bracamontes. "Their equipment across the board is manufactured with efficiency in mind and designed specifically for heavy-duty projects while allowing for ease of shotcrete application."

"In addition, they worked with us from the beginning of our projects to the end and even after to ensure we were providing the absolute best solution to all of our customers. They also ensured spare parts were readily available and offered 24/7 technical support so we were never left hanging."

Mexican Soccer Hall of Fame

Project Location
Pachuca, Hidalgo, Mexico

General Contractor
Ingenieria y Constructucciones Gabe S.A. de C.V.
Mexico City, Mexico

Concrete Pumping Contractor
Soluciones Técnicas y Profesionales ADRA S.A. de C.V. (ADRA)
León Guanajuato, Mexico

Project Owner/Developer
Pachuca Football Club

Equipment
Thom-Katt® TK 20 high-pressure shotcrete/concrete pump,
Allentown Shotcrete Technology, Inc.

Aliva® 263 shotcrete spraying machine,
Allentown Shotcrete Technology, Inc.

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