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SOUTHWEST DESIGN FIRM OF THE YEAR: AZTEC ENGINEERING GROUP, INC.

Freeways Propel Engineer's Growth

TOP DESIGN FIRMS • CLIMATE AIDS NET-ZERO GOAL

ENGINEER PROSPERS BECAUSE OF ITS PEOPLE

Design Firm of the Year AZTEC Engineering has grown from a small business to one that competes with the biggest firms in the U.S. on transportation and other projects

BY JOHN GUZZON



“We like to say it is the people that make the firm, not the firm that makes the people.”

—Robert Lemke, AZTEC Engineering

Less than 20 years ago, AZTEC Engineering, Phoenix, was a disadvantaged business enterprise firm looking to make its mark. Today, the firm is the fifth largest on ENR Southwest’s Top Design Firms ranking based on annual revenue. AZTEC reported \$27.83 million in regional revenue in 2014 and moved up 15 spots on the survey over the previous year, when it logged \$14.95 million. The firm also ranks atop the survey’s transportation category, with a plethora of projects in Arizona.

Robert Lemke, CEO of AZTEC, says the reason for the firm’s growth and industry recognition is the most important thing at any design firm: its people.

“We like to say it is the people that make the firm, not the firm that makes the people. It’s not always the larger firms that have individuals that are capable of doing high-quality work,” Lemke says.

James Waller, national manager for design-build services at Granite Construction, calls AZTEC a

“world-class” firm. “For a small to mid-sized company, they are able to perform like a large firm,” Waller says. “They just execute very well. They’re one of our engineering firms of choice.”

Fast Lane to Growth

Lemke says AZTEC’s staff is able to perform at a high level because the firm has made a specific effort to recruit top-tier talent from international firms.

“What sets us apart is that several of us came from larger firms and we wanted to take our experiences and employ them at AZTEC,” he says. “We have professionals that have come over from larger firms, including URS, HDR and AECOM. Even so, it is kind of unheard of that a small firm such as ours with about only 130 people is proposing on such large jobs. It comes down to the people that we have. Most of us are fairly young—50 or under—and we have a lot of motivation to succeed and provide extra efforts.”

BIG FOOTPRINT AZTEC designed Arizona’s largest freeway interchange, the connection between I-10 and Loop 303 in Phoenix’s West Valley.



Lemke joined AZTEC in 1997, the same year that the firm landed a contract with the Salt River Pima Maricopa Indian Community to design nine miles of water and sewer lines. The project set the stage for the future growth.



COMMUNITY DESIGN AZTEC Engineering developed a signage package for the Peoria Entertainment District.

“We started out working on that, and then we were able to win some statewide Arizona Dept. of Transportation on-calls,” Lemke says. “Then it led to design work on mainline and some drainage, and we just kept building.”

Scott McKenzie, executive vice president of AZTEC, says the firm’s addition in 1999 of an urban freeway design group led by Curt Slagell resulted in another turning point when AZTEC won a contract to design the Country Club Drive to Gilbert Road section of the Red Mountain Loop 202 Freeway east of Phoenix.

“It was a huge milestone when a relatively small, regional firm went head-to-head with national firms and was able to win the project. From there, we haven’t really looked back,” McKenzie says.

Transportation Factor

Since 1999, AZTEC has been a key player in the development of the Phoenix regional freeway system,



MILESTONE AZTEC first performed work on the Red Mountain Freeway in the East Valley of the Phoenix metro area more than 10 years ago.

“On a five-star rating system, they would get six stars from me.”

—Eric Prosnier, ADOT

having worked on at least one segment on each of the loops: 101, 202 and 303. Along the way, the firm built its reputation and was rewarded with additional projects, Lemke says.

In 2001 and 2002, the company established business practices for subsurface utility engineering and environmental services. This action allowed AZTEC to become more of a “full-service” firm, he says.

“We became known as a firm that was very good at delivering final design for complex, multilevel freeway-to-freeway system interchanges,” Lemke says. The firm’s first interchange design connected Loop 101 and State Route 51. Next, the firm won the design contract for the Loop 202 and U.S. 60 interchange in the East Valley.

Most recently, the firm designed the first phase of the I-10 and Loop 303 interchange. Completed in 2014, the 90-ft-tall, five-tiered structure features the largest footprint, including frontage roads, of any interchange in Arizona.

Project components include 14 cast-in-place, post-tensioned box girder bridges and four freeway-to-freeway directional ramps, including the east-to-north and south-to-east connections and portions of the west-to-south and north-to-west flyover ramps.

The longest bridge, the east-to-north route, reaches more than 3,400 ft and consists of six frame columns more than 94 ft tall. The major structures include

more than 16,700 linear ft of 48-in.-dia to 120-in.-dia drilled shafts, more than 13.8 million lb of reinforcing steel and 71,200 cu yd of structural concrete.

On the interchange, AZTEC demonstrated its commitment to client Arizona Dept. of Transportation by reconfiguring the design when it was nearly 95% complete to add two flyover ramps as part of a \$10-million owner-requested change order, says Eric Prosnier, ADOT project manager. The ramps were originally planned for the interchange’s second phase.

AZTEC is “fantastic, easy to work with and very responsive,” Prosnier says. “On a five-star rating system, they would get six stars from me.”

Recent projects include the 20-mile Red Mountain Freeway widening project, which stretches from Price Road at Loop 101 to Broadway Road in the East Valley. The firm also recently designed the U.S. 89 and Navajo Route 20 detour, an emergency action item for ADOT due to a major landslide that closed U.S. 89 about 25 miles south of Page, Ariz. The project improved Navajo Route 20 to create a long-term detour.

Due to the successful collaboration between the public agencies and project team, this project was environmentally cleared in four weeks and designed in six weeks. The effort resulted in an ENR Southwest Best Projects award in 2014 as well as other industry honors.

PHOTOS COURTESY OF AZTEC ENGINEERING



TRANSIT PLAN As part of its work with parent firm Typsa, AZTEC is creating a feasibility study for Colorado DOT’s proposed high-speed rail from Denver to surrounding areas.



CONNECTOR Construction on Black Mountain Boulevard is underway near Pinnacle High School in Phoenix. When completed later this year, the project will connect State Route 51 to Deer Valley Road.



“It was a huge milestone when a relatively small, regional firm went head-to-head with national firms and was able to win the project.”

—Scott McKenzie, AZTEC Engineering

AZTEC is also working on the P83 Entertainment District in Peoria, Ariz. Located near the Peoria Sports Complex, the project will revamp 83rd Avenue from Skunk Creek Wash to Bell Road, and Paradise Lane from 83rd Avenue to 75th Avenue.

AZTEC prepared the design concept report and 30% construction documents for the P83 Entertainment District. Work on the project also includes developing an overall signage package and performing a lighting study for the district.

Small Firm, Big Owner

AZTEC, known as a small to mid-size Southwest specialty firm since its inception, was purchased by Spanish firm Typsa in 2006. Typsa has executed major infrastructure projects in Europe, the Americas, Africa and the Middle East for nearly 50 years. Lemke says their parent firm has allowed AZTEC to continue to thrive within their successful business model while also providing access to the vast resources expected from an international firm of more than 2,500 employees and with revenue of about \$250 million.

“Since Typsa came on board, we have been able to maximize some of the international business relationships of our parent company to pursue work nationally, specifically for alternative delivery projects that have started to blossom in the U.S.,” Lemke says.

The firm is currently pursuing two of the largest alternative delivery projects in the Southwest: the design-build Project Neon in Las Vegas and the public-private partnership South Mountain Freeway in Phoenix. The firm has been shortlisted on both projects with teams that include a multitude of firms.

Project Neon will extend 3.7 miles along I-15 from Sahara to the U.S. 95 and I-15 interchange, adding a high occupancy vehicle (HOV) connector between U.S. 95 and I-15 and direct HOV access ramps at Neon

Gateway. The effort will also reconstruct the Charleston Boulevard interchange and Grand Central Industrial connector over Union Pacific Railroad tracks.

“That’s typically the kind of job that goes to the top six or 10 engineering design firms in the country,” says Granite Construction’s Waller. Granite leads a joint venture partnership in a team that also includes AZTEC.

AZTEC has also partnered with Granite and other firms to pursue the South Mountain Freeway. The final P3 development team is expected to be chosen by January 2016. The 22-mile freeway will have four lanes in each direction, including one HOV lane in each direction. More than 78 bridges are expected to be built as part of the project.

“These alternative delivery and P3 projects are key for federal, state and local agencies to move major infrastructure projects forward. We constantly analyze market trends, and one of those is alternative delivery,” Lemke says.

But as the Southwest construction market continues to await the next big boom and with the Phoenix regional freeway system nearly complete, AZTEC also looks to other markets and building types.

“The economy is improving, but not to the pace it once was in the transportation market,” Lemke says. “We are always looking for infrastructure-type projects to maintain our growth and portfolios of projects we can deliver. We’ve hired project managers who are mobile to work on proposals and contracts in several states.”

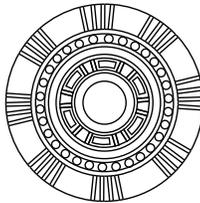
McKenzie says joining Typsa has helped AZTEC gain exposure to bigger construction markets beyond the Southwest.

For example, the firm is currently working on section 5 of the I-69 project in Indiana that will eventually improve the freeway from Evansville to Indianapolis. ■

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