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From Holsteins to Hospitals

By K. Robert Wendel

Catholic Healthcare West's new Gilbert Mercy Medical Center won't be surrounded by dairy farms for long. One of the nation's fastest growing cities is rising up around the 360,000-sq.-ft. hospital.

Work on the massive project started last spring with clearing operations, and with crews from Kitchell Contractors of Phoenix and their subs recently topped out the four-story project.

The new hospital is a boon for Gilbert, southeast of Phoenix, which has seen it's population grow from 5,000 people in 1980 to nearly 200,000 today.

The complex job is on a tight, fast-tracked schedule.

"The schedule was extremely critical, so we basically designed it in three months," said Charles Stubbs of Albuquerque's Chavez Grieves Consulting Engineers Inc. "We topped out the frame the same week that we had the 50 percent architectural design review."

The project's design is embracing many new features that are increasingly being found in hospital architecture. Long and sterile hallways are replaced with shorter "racetrack" layouts. All 214 rooms are private and feature a foldout sofa so patients' relatives can spend the night.

"It's not just high-end finishes and glitz," said architect David Moon of San Diego's Mayoras Architects Inc. "It's a very therapeutic and evidence-based design. It's not a hospitality design but a family- and patient-centered care concept with special accommodations for family members to encourage them to participate in the healing process."

While designers paid careful attention to patients' needs, they also focused on creating a comfortable staff environment.

"A lot of the nurses are starting to get older, so it's nice there are shorter halls so they aren't on their feet so much," said Gilbert Mercy Medical Center president Laurie Eberst.

The $80 million project features a two-story diagnostic center along with a four-story patient tower. The patient tower's first floor is dedicated to administration while the remaining floors will service patients. There are 12 intensive care beds serviced by a separate entrance with a porte-cochere and a cardiac unit.

Kitchell plans to start construction on a second, 65,000- sq.- ft., four- story patient tower this month. The steel-framed buildings feature a mixture of EFIS and dry-stack stone with architectural punch-outs.

Rio Rancho, N.M.-based AMFAB Steel fabricated the steel, which was detailed by DTLS Inc., also of Rio Rancho, and erected by Top Flite Construction of Phoenix.

"We went through extensive analysis of systems and strategies to come up with the most efficient structural system," said Kitchell project director Pat Watson. "With this system from AMFAB, we picked up several months of time."

The project required 2,000 tons of steel and more than 10,000 cu. yds. of concrete. The structural bays are 22 -ft. by 22 -ft. with 6.5-in.- thick concrete floors on top of a steel- pan deck

The project relies on a somewhat unique pier system using aggregate instead of concrete or slurry. Crews from San Diego-based Hayward Baker drilled more than 750 holes 16 -ft. deep and 2-ft. wide. Aggregate was dumped into the holes and compacted with a vibrator.

"Vibro Pier" technology uses displacement and vibratory energy to densify the column aggregate and surrounding soils. The dense and stiff stone material interlocks to form a column and engages the surrounding soil to provide reinforcement while increasing shear resistance.

"We brought in this system because we are on such a fast track," said Dave McDermed, Kitchell's project manager. "But it also turned out to be more economical than a caisson and grade beam system. The aggregate pier system is working very well for us."

Designers created extra mechanical capacity for future expansion. The project features a separate mechanical yard. To reduce electrical use and cost, high-performance heating and cooling equipment, which exceeds national standard values, was selected. The new central plant has two 700-ton chillers, providing 1,400 tons of cooling capacity.

Los Angeles-based Syska Hennessy Group was the mechanical designer and University Mechanical of Phoenix installed the HVAC and plumbing.

The hospital has a highly developed information highway that integrates the building management system with fire alarm and overall facility access and security.

The peak electrical load for the hospital is approximately 3MW, which is equivalent to approximately 600 homes. Syska Hennessy Group also designed the electrical system, which was installed by Delta Diversified Inc. of Phoenix.

"It's certainly an exciting project to work on because every decision is critical path," architect Moon said. "We have worked on a lot of hospitals, but this is the fastest one we have ever done."