

# • San Antonio's VISION of the future

Methodist Stone Oak Hospital focuses on patient satisfaction through technology

By Scott Cannon

Many of the hospitals in San Antonio, Texas, were built in the 1960s and 1970s, well before anyone thought of patients as consumers. By the beginning of the 21st century, these facilities and our attitudes toward patients were both outdated. With the needs of market and technological needs of the 21st century in mind, leaders of Methodist Stone Oak Hospital planned and, in December 2008 completed construction of a 282,370-square-foot, 132-bed comprehensive tertiary care hospital and an attached 120,000-square-foot medical office building, with provisions for up to 350 beds in future phases on the 40-acre site.

Conceptualized by the owner as a 'hospital of the future' for the San Antonio market, Methodist Stone Oak is designed to respond to rapid changes in the patient population and healthcare delivery, including new diagnoses and treatment modalities, at higher levels of quality, efficiency and, especially, patient satisfaction.

The hospital provides major acute healthcare services and communications technology includes bedside admitting, electronic medical records, electronic physician order management and an imaging picture archiving system.

Methodist Healthcare and its hospitals provide quality healthcare in San Antonio and 26 surrounding counties. Since opening its first hospital in 1963, Methodist Healthcare has become the area's second largest private employer with more than 7,000 employees in 22 healthcare facilities.

#### **Navigable, warm and ergonomic**

The architect, HOK, designed the hospital from the ground floor up with access improvements for ease of navigation, including three entrances along a single concourse running the length of the hospital, along which are easily identifiable centers of care. The intention is to reduce

confusion and frustration for patients, families and visitors. The interior is designed to convey feelings of warmth, welcome and respect for patient dignity. Abundant daylight and use of natural materials such as wood and stone contribute to the patient's experience of a healing environment.

A large open dining room flanked by floor-to-ceiling windows provides views of a garden on one side and a courtyard on the other. Art and sculptures with themes of 'calming and healing' were selected to decorate the hospital.

The all-private rooms are same-handed to reduce the potential for medical errors associated with varying locations of casework and equipment. Rooms are inboard-canted with patients' bathrooms behind the headwalls to decrease the distances nurses must walk to reach patients and enable them to see patients from the doorways. HOK also worked with the hos-



pital's professional staff to identify the most ergonomic placement of medical gases and electrical outlets. As a result of staff feedback, outlets were shifted from the floor to halfway up the wall to reduce back strain on caregivers.

It has been estimated that the ergonomic design of patient rooms, decentralized nursing stations and communications technology will save nurses up to 1,000 steps per day.

### Collaborative planning and design effort

The Skanska project team began working with Methodist Stone Oak Hospital leaders, HOK, and CCRD, the mechanical/plumbing/electrical engineer, during the design phase to understand the design, systems, construction issues and goals, and contribute to meeting them. This collaborative planning and design effort resulted in significant improvements in design, systems and constructability.

For example, the original design called for a precast concrete skin. However, during a constructability analysis, the project team identified several disadvantages of this system: the cost and potential danger of using a large crane to erect the 20,000-pound members on the building site, which is bisected by power lines; and the future challenge and cost to remove and replace the skin when the hospital vertically expands. Skanska suggested using local brick and stone to construct the building skin — and worked closely with HOK to select materials that were compatible with its aesthetic vision. This safer alternative generated significant savings on phase one and subsequent phases and was part of numerous value management sessions so the project budget and value were maximized for the client.

### A greener emergency power solution

Most hospitals use diesel-fueled emergency generators, necessitating on-site storage of thousands of gallons of diesel fuel. Due to the environmental sensitiv-

## Services offered by Methodist Stone Oak Hospital

- > Acute care facility offering services for cardiology, neurosurgery, general surgery, orthopedics, ob/gyn, oncology and primary care
- > All private rooms
- > Emergency department
- > 28 exam rooms including fast track
- > Staffed by all board-certified physicians in emergency medicine
- > Two cath labs
- > Six general operating room suites
- > Two endoscopy/GI labs
- > OB services
- > Nine labor and delivery rooms
- > Two C-section rooms
- > Nine-bed newborn intensive care unit
- > 14-bed intensive care unit
- > Imaging services
- > 1.5T MRI scanner
- > 64-slice CT scanner
- > PACS
- > 120,000-square-foot medical office building, attached at all levels
- > Valet parking for all patients and visitors

ity of the site, TCEQ restricted on-site diesel fuel storage to a maximum of 600 gallons. During the planning process, Skanska, CCRD and HOK collaborated to develop an innovative solution: a single diesel-fueled generator with 600 gallons on-site fuel storage that brings life-safety and other critical electrical branch circuits back on line within 10 seconds of a power outage. Natural gas generators then take over for the duration of the outage. This provided a win-win situation for the facility as well as the Texas Commission on Environmental Quality and the environment.

During pre-construction planning, Skanska also developed a construction sequence that enabled the owner to delay final selection of medical and communications technology until the

last possible moment, ensuring that they would be able to choose the newest generation of technology available.

The environmental sensitivity of the site posed construction challenges. A karst landscape, the site is underlain by limestone that has been eroded by water action — specifically, the Edwards Aquifer Authority, which supplies drinking water to San Antonio — producing ridges, towers, fissures, sinkholes and other characteristic landforms. As these features were encountered during site development, Skanska



coordinated with Edwards Aquifer and the Texas Commission on Environmental Quality to remediate fissures and sinkholes according to the design solution developed by geotechnical engineers from Raba Kistner Consulting.

The cost-effective solution involved filling these features with a water-permeable cementitious material, which provides a solid foundation for construction without disrupting the flow of water in the aquifer. Because the challenges were anticipated and an appropriate solution was developed by the project team and accepted by the owner during the pre-construction planning phase, remediation was accomplished without delaying the construction schedule. ■

**Scott Cannon is a senior vice president with Skanska USA Building, Inc., and oversees the company's San Antonio, Texas, operations. He is active in the American Society of Healthcare Engineering and holds an ASHE Healthcare Contractor's Certification. Cannon is a graduate of the Georgia Institute of Technology with a bachelor's degree in civil engineering.**