

# TexasArchitect

MAY/JUNE 2010



REPRINTED FROM TEXAS ARCHITECT



Feigin  
Center

# Beacon of Hope

by KURT NEUBEK, FAIA

**PROJECT** Texas Children's Hospital Feigin Center, Houston  
**CLIENT** Texas Children's Hospital  
**ARCHITECT** FKP Architects  
**DESIGN TEAM** Michael Shirley, AIA; Cynthia Walston, AIA; Jon Franklin, AIA; Daniel Huynh, AIA; Daniel Gaitan, Assoc. AIA; John Goodman; Paul Asteris; Deon Hoang  
**CONTRACTOR** W.S. Bellows Construction  
**CONSULTANTS** Inventure Design (interiors); Walter P Moore (structural, civil); Burns Delatte McCoy (MEP); White Oak Studio (landscape); Peter M. Muller (curtainwall); Persohn/Hahn Assoc. (elevator); MJS Lighting Consultants (lighting); Kroll (security)  
**PHOTOGRAPHY** Aker/Zvonkovic Photography

Located in the Texas Medical Center in Houston, Texas Children's Hospital (TCH) is the largest pediatric hospital in the U.S. and is widely recognized as one of the best in the world.

In late 2006 the hospital announced its Vision 2010, a \$1.5 billion investment in four facilities—"the largest investment and program expansion ever by a single pediatric organization," according to Texas Children's Hospital. The first completed of the four projects is the \$120 million, eight-story vertical expansion of the Feigin Center, designed by FKP Architects and encompassing 206,000 square feet. The building is named for the late Dr. Ralph Feigin (pronounced *Fligin*, with a long "i" and a hard "g"), the hospital's influential and well respected physician-in-chief, the position he held until his death in 2008.

Originally a 12-story clinical building designed by Kenneth Bentsen & Associates and completed in 1991, the base structure was built to accommodate future vertical expansion. In 2002, an FKP-designed renovation converted the building to a research facility. That conversion required the installation of a large exhaust manifold, in addition to 80 exhaust fans on the roof. The cluttered rooftop, above an occupied research floor, thus became "the site" for the eight-story expansion. When construction began in January 2007, it was dubbed "raising the roof."

The program for the expansion included five floors of research space plus a new pediatric simulation center and information technology space.

Though the perimeter and elevator core were fixed by the structure below and the new laboratories were intended to be fundamentally similar to the existing, the architects did not simply duplicate the existing exterior or floor plan. Inside the labs, reprised from the lower



floors, is full-height glass at the end of each lab and corridor because great views and extensive natural light “are now an expectation in labs to compete for the best talent,” notes Cynthia Walston, AIA, an FKP principal and senior laboratory planner. As a way to tie the building together and allow occupants of the lower floors to benefit from the expansion, all existing elevator lobbies were renovated to match the upper floors. “We didn’t want to split the building functionally, aesthetically, or philosophically,” says Allison Muth, AIA, assistant director of Texas Children’s facilities planning and development. “We wanted it to feel and function as one building.”

Outside the labs, the new floor plans have two significant changes compared to the lower floors. First is the creation of a visually open zone running through the elevator lobbies to the exterior, which brings light deep into the building and provides areas for staff interaction at either side of each floor. This subtle change markedly improves the quality of the space in the building’s core on the upper floors. The second change responds to requests for more space dedicated to collaboration among researchers. These stacked two-story spaces along the glass wall are filled with daylight and equipped with a variety of movable furniture and tackable surfaces to foster the exchange of ideas. An adjacent kitchen is enclosed to contain food odors. Open to everyone in the building, the collaboration areas have been very popular and are an excellent example of how architecture can genuinely contribute to medical breakthroughs.

A significant factor in the building expansion was the exhaust system. All the equipment on the original roof caused the thirteenth floor to be a mechanical floor. The exhaust system on each new floor was then arranged around two major vertical stainless steel ducts that run along the inside of the exterior wall. On each floor near the collaboration spaces, ducts are set behind clear glass and lit so it’s a visible expression from the outside of the technology within.

Research labs typically require up to 10 air changes per hour, which uses an enormous amount of energy, but is standard practice to protect occupants in case of accidental contamination. To reduce energy consumption without affecting safety, the project design team specified an air-monitoring system that continually “sniffs” for dangerous particulates in the air. If detected, the system automatically increases exhaust and make-up air volumes to flush any contaminated air. Since spills are actually quite rare, the system normally supplies just four air changes per hour but increases to 15 air changes in case of an accident.

Notably, despite building eight floors atop an operating research building, Texas Children’s Hospital did not evacuate the top floor during construction. Though many people were concerned that the construction would adversely affect the scientists’ work, Texas Children’s installed sound and vibration



RESOURCES POROUS PAVING: Gibsons Landscape; IRRIGATION: Hall Sprinkler; CONCRETE MATERIALS: Southern Star Concrete; PRECAST ARCHITECTURAL CONCRETE: Redondo Manufacturing; GRANITE: Cold Spring Granite; METAL DECKING AND RAILINGS: Steel Designs; ARCHITECTURAL WOODWORK AND LAMINATES: Woodcraft Studios Inc.; METAL DOORS AND FRAMES: Pearland Industries; PLASTIC LAMINATE DOORS AND ALUMINUM FRAMES: Versatrac; GLASS DOORS AND SIDELITES, GLASS STAIRS, WAVE PATTERN COMPOSITE, MISCELLANEOUS GLASS: Vision Products; STRUCTURAL GLASS CURTAINWALL: Arrowall; DOOR HARDWARE: Houston Builders Hardware; ACOUSTICAL AND LAB CEILINGS: Clunn Acoustical; CARPET AND RESILIENT FLOORING: ACS Flooring Group; WALL COVERINGS, DRY ERASE, TACKABLE AND PROTECTIVE WALL COVERINGS: Wall-coverings International; ACOUSTICAL TREATMENTS AND AV DESIGN: HFP Acoustical Consultants; MANUFACTURED AND LAB CASEWORK: Thermo Scientific-Hamilton Lab Furniture (MGC); FLOOR MATS AND FRAMES: Dycem; LAB SEATING, OFFICE FURNITURE, WORKSTATION FURNITURE, CONFERENCE ROOM FURNITURE: McCoy Workplace Solutions; STERILIZERS: Getinge USA; MRI: Bruker BioSpin Corp.; SIMULATORS AND MANIKINS: Laerdal Medical Corp.; BIOSAFETY CABINETS AND LIQUID NITROGEN DELIVERY SYSTEM: Scientific Resources Southwest; DOOR HARDWARE AND SECURITY: Assa Abloy; STAINLESS STEEL WIRE SHELVING AND HIGH DENSITY STORAGE SYSTEMS: Intermetro Industries; DESIGN SOFTWARE: Autodesk 3D Max; CONSTRUCTION DOCUMENT SOFTWARE: Autodesk Architectural Desktop, Autodesk Navisworks



(preceding spread) The vertical expansion of the Feigin Center represents the first built component of \$1.5 billion in capital improvements planned for Texas Children’s Hospital in Houston.

(opposite page) Floor-to-floor vision glass offers expansive views from the labs.

(top left) New floors include collaboration areas meant to encourage informal meetings among researchers.

(above) Two-story “jewel box” spaces at the window wall on the new floors open to unobstructed vistas to the south and foster the intellectual collision of ideas.



(left) Located on Texas Children's compact campus in one of the world's largest medical centers, the Feigin expansion added eight floors to the existing 12-story building.

(below) Feigin's pediatric simulation center, unique to Texas and among the largest in the nation, provides the highest level of virtual multi-disciplinary medical training.



PARTIAL BUILDING SECTION OF A TWO-STORY COLLABORATION SPACE, LOOKING WEST

monitors. Based on the data, the construction had very little impact on the occupants. In fact, nearby roadwork had a greater impact.

The exterior expression offered its own challenges, according to FKP's Michael Shirley, AIA, principal and senior project designer. While Texas Children's is proud of its long-established campus identity based on horizontal bands of reflective Champagne-colored glass and Texas Sunset Red granite, the owner also wanted this building to serve as a landmark. The design team responded by selecting a highly transparent, high-performance glass with a ceramic frit (after experimenting with 10 different types of glazing installed in the existing building). To match the granite, the contractor saved 14 full-size panels from the existing building and shipped some of them to the original quarry in Marble Falls. Quarry workers went back to the same part of the quarry where the original panels had been extracted nearly 20 years earlier and obtained enough granite for a seamless match.

Another significant aspect to the project was the client's request that the new building represent a metaphorical beacon of hope. That was achieved by the addition of a blue glow around the building's top three floors. After reviewing computer renderings of 15 different lighting effects and building a full-size mock-up of the light cove in the existing building, the design team and client agreed on a combination of cold cathode, incandescent, and LED lighting.

When asked how the building design has been perceived by the community, Texas Children's Allison Muth says, "Everyone is pleased. The expansion has brought more attention to the building; it increased the visibility. People tell us, 'We can see Texas Children's now' and 'It has a lot more presence.'"

A highlight of the building is the 8,000-sf pediatric simulation training center, one of the few in the country and the first in Texas. The center includes typical exam rooms where trainees are videotaped interacting with mock patients, then their performance is reviewed on a large screen in an adjacent debriefing room. Nearby, a central control room is flanked by two large simulation theaters that can model different rooms such as emergency room, operating room, or neonatal intensive care.

The Feigin Center expansion is an excellent example of a fundamentally difficult task that was accomplished through the thoughtful teamwork of the owner, architect, structural and mechanical engineers, many consultants, and contractor. The building is a technical triumph, yet it's also filled with many thoughtful design elements that together set the new architectural standard for the Texas Children's campus.

Kurt Neubek, FAIA, is an associate principal of Page Southerland Page in Houston.