Center for BioHealth at the University of North Texas Health Science Center

Fort Worth, TX

Team

Owner:
University of North Texas, Fort Worth, TX

Architect:
Carter & Burgess, Inc. and Polshek Partnership

Engineer:
Carter & Burgess, Inc.

Total Project Cost:
$42 million

Total Project Size:
156,000 sq ft (six-stories)

Photography:
Carter & Burgess, Inc. and Polshek Partnership

STRUCTURAL FRAMING SYSTEM

Located on the southeast corner of the University of North Texas campus, the new Center for BioHealth serves as the welcoming gateway to the school's Health Science Center complex. The building's diverse and technical program needs were joined with a distinctive, yet sleek aesthetic design to create a contemporary building that is functionally efficient and cost effective.

The six-story facility was designed to offer maximum flexibility for floor designs. The structural system consists of cast-in-place, conventionally reinforced concrete framing consisting of columns and girders. Lateral loads are resisted by rigid concrete moment frames in each orthogonal axis. The floors were constructed using a pan-joist system, which minimized forming costs, provided a suitable finish, and offered inherent fire resistence for the exposed structure in laboratory, service, classroom, and utility spaces.

UNIQUE DESIGN FEATURES

Reinforced concrete was selected for the structure because of its ability to respond to the laboratories' needs to dampen transient vibrations, which could disrupt or distort delicate instrumentation and imaging equipment. Cast-in-place, reinforced concrete construction also allowed an early start to the project and an accelerated construction schedule, which saved costs on this publicly funded project. The concrete used in the structure included a high proportion of fly ash, adding to the project's sustainable design.

The architects considered the surrounding neighborhoods, including the adjoining Fort Worth Cultural District, in their approach to aesthetics. The building's curved façade was created with precast, reinforced concrete panels attached to the formed concrete frame. Exterior materials, shapes, and surfaces were chosen to complement those of the existing campus buildings, as well as those in the adjacent cultural district. Inside, the exposed, cast-in-place reinforced concrete joist ribs were ground smooth to provide a desirable aesthetic for the exposed elements.

REASONS FOR CHOOSING REINFORCED CONCRETE

The cast-in-place reinforced concrete system will allow easy adaptability to future needs as technologies change and the school's needs evolve. The load carrying capacity of the pan-joist floor framing will allow the laboratories to be reconfigured as needed to support new spaces and loading requirements. The structural modules and laboratory modules were coordinated on each of the 26,000-square-foot floors to provide flexibility in locating partitions.

The cast-in-place, reinforced concrete design provided a variety of short- and long-term advantages, including allowing cost-effective increases in live-load capacity during design, inherent stiffness, and excellent vibration damping. The inherently corrosion-resistant character of concrete also offered an effective way to provide a crawl space below the ground-level floor for access to mechanical piping and electrical systems, without concern about premature structural deterioration.

Designers specified reinforced concrete to assist with vibration control

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