

University of Texas Southwestern Medical Center Phase IV

Dallas, TX



Team

Owner:

The University of Texas Southwestern Medical Center, Dallas, TX

Architect:

Omniplan

Engineer:

Datum Engineers, Inc., Dallas, TX

General Contractor:

Austin Commercial, LP.

Reinforcing Bar Fabricator:

CMC Rebar, Dallas, TX

Total Project Cost:

\$145 million

Total Project Size:

830,000 sq ft (16-stories)

Award:

2008 CRSI Design Award Honorable Mention
– Education & Healthcare Facilities Category

Photography:

The University of Texas Southwestern Medical Center

STRUCTURAL FRAMING SYSTEM

Administrators planning the University of Texas' new Southwestern Medical Center project had to meet specialized vibration-abatement needs to handle the state-of-the-art magnification and measuring equipment used by the medical-research laboratory. Reinforced concrete, in the form of precast concrete panels and cast-in-place beams and columns, helped achieve that goal and add other benefits.

UNIQUE DESIGN FEATURES

The building's 12-hertz limitation on floor vibration frequency, combined with a need for flexibility to adapt to future equipment needs, led designers to specify the cast-in-place, reinforced concrete frame. The exposed façade features precast concrete panels, which served as permanent formwork for the reinforced concrete beams and columns. This approach provided the stiff structural framing required for the vibration limitations while maintaining the thin architectural profile of perimeter structural elements.

To provide flexibility for future adaptations, each slab bay between concrete joints was designed to be removed on one side of the joist without hindering the performance of the overall structure.

Bracing for the building was accomplished with column/girder and column/two-joist frames above the transfer level and cast-in-place shear walls below. The shear walls provided bracing for wind, seismic, and unbalanced soil loads due to the sloping site. The entire structure was supported on cast-in-place drilled piers that varied in size, with battered piers at the shear walls for lateral loads.

REASONS FOR CHOOSING REINFORCED CONCRETE

Reinforced concrete provided the best option for the framing system, especially in light of experiences with previous construction projects. Earlier designs had used steel-braced frames and composite steel floors and did not meet expectations for vibration control. The required fire rating also was achieved easily with reinforced concrete components, as it was inherent in their composition.

Parking levels were created on the lower levels of the structure, and the exposed reinforced concrete flooring provided an economical, fire-rated division as required by code.

Vibration control and the need to adapt to future equipment needs led designers to specify reinforced concrete.