



Pickett, Kelm & Associates, Inc.
Consulting Structural Engineers

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Rouse High School

PROJECT LOCATION: LEANDER, TX

PROJECT OWNER: LEANDER ISD

ARCHITECT: FIELDS & ASSOCIATES

GENERAL CONTRACTOR:
AMERICAN CONSTRUCTORS

COMPLETED: 2008

CONSTRUCTION COST: \$79,245,000



PROJECT DESCRIPTION:

Pickett, Kelm & Associates provided structural engineering services for this 439,000 square foot high school campus facility on a site adjacent to Wiley Middle School. The project includes four main buildings for classrooms and administration, science laboratories, vocational and fine arts and athletics. Other facilities include an automotive technology building, an ag building, athletic practice fields, a track and football/soccer field, baseball and softball fields, tennis courts and concessions and ticket buildings.



The project utilizes a combination of exterior insulated and interior uninsulated load-bearing tilt-up concrete panels. Exterior panels used both thin brick and exposed, sandblasted architectural concrete. A total of 742 tilt-up panels with a combined weight of over 10,000 tons were erected for the project, including the 7th largest spandrel panel (over the auditorium stage) ever erected. The use of tilt-up concrete eliminated the need for exterior columns and virtually all interior columns. Interior finish walls are clean, smooth, durable and virtually free of pilasters and "bump-outs." The tilt-up wall panels were used as shear walls to eliminate the need for braced or moment-resistant frames, and also provided excellent watertightness, speed of construction and outstanding energy efficiency. The use of tilt-up construction also allowed PKA to provide regular, repetitive steel framing and maximize deck spans, resulting in structural economy.



Roof framing at the classroom and administration building consists of hipped and gabled standing seam roofs supported by structural metal deck, sloped parallel chord and gabled steel joists and a combination of tilt-up panels, girders and columns. Continuous mechanical platforms over the corridors and classrooms, and second floor framing consists of composite slabs supported by composite steel framing.

Roof framing at the other main buildings generally consists of insulated lightweight concrete fill over steel roof decks supported by steel joists and tilt-up wall panels. Tectum deck was used at the gymnasiums, fitness, wrestling and weight rooms. The concessions buildings consist of hipped and gabled pre-engineered wood trusses supported by tilt-up panels. The ag building consists of a pre-engineered metal building with tilt-up cladding along two-sides.



The buildings were provided with canopies cantilevered from the face of the tilt-up panels. Framing for the canopies and the breezeway covers consisted of galvanized tee beams, with the breezeway roofing supported by cast-in-place concrete columns. A pavilion, consisting of galvanized steel trusses with tubular steel rafters was provided, as a gathering area, between the fine arts and athletics buildings.

Foundations consist of ground-supported floor slabs, grade beams and drilled piers, using a combination of skin friction and end-bearing into limestone.