

# Huckabee

ARCHITECTURE  
ENGINEERING  
MANAGEMENT

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## RECENT NEWS

Huckabee Ranked Third in Texas by  
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Huckabee Wins TASA/TASB  
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Happy Hill Farm Dedicates New T.  
Boone Pickens  
Training Center and Guest Lodge

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## A New Energy Efficient and Sustainable Elementary School for Sanger ISD

MAY 1, 2008

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On November 7, 2006, voters in the Sanger community overwhelmingly approved a \$12.9 million bond referendum for a new elementary school. Sparked by a steady growth pattern, the Superintendent of Schools decided that the best, most prudent course of action was to design and build a new elementary school for 700 students as well as make minor adjustments in population placement at Clear Creek and Chisholm Trail schools.



Specific direction and criteria was given to Huckabee for the new school; many of which were directly related to energy efficiency and the sustainability of the building envelope.

Smart design considerations were employed for the geothermal HVAC system. In simple terms, a geothermal heat pump system is a heating and/or air conditioning system that utilizes the Earth's ability to store heat in the ground and water thermal masses. This system uses the Earth's land mass as a heat exchanger to either heat or cool a building structure. The premise is that the ground, below the frost line, stays at a constant 50 degrees year round, and a water-source heat pump utilizes that available heat in the winter and puts heat back into the ground in the summer. This system will provide the Sanger ISD with tremendous energy savings for the life of the building and is in line with high performance systems being constructed in schools across the country.

Additionally, the District asked Huckabee to research an insulated concrete form wall system for the building envelope. Traditionally, Huckabee buildings incorporate a reinforced masonry wall system for the building envelope that is cost effective to build and offers school districts a low maintenance, durable and highly efficient wall system. For this building however, the decision was made to study alternative methods of constructing a building envelope that would offer our clients options and would enable Huckabee to analyze the cost differences and cost effectiveness of two different systems. The ICF wall system has been in use for many years but strictly in the small commercial and residential markets. To date, no public schools in Texas have been designed with the ICF system. The wall system consists of a 6-inch, 8-inch, 10-inch or 12-inch reinforced concrete formed wall sandwiched between a high-density Expanded Polystyrene forms structurally tied together with either steel or high strength plastic reinforcing ties at 8-inch centers. The wall system boasts an energy efficiency rating similar to insulated, reinforced masonry which is encouraging from an alternative wall system standpoint. Finally, by utilizing the ICF wall system in a large portion of the building, the District will meet certain LEED requirements for sustainable buildings. R-Values in the range of reinforced masonry make this product a viable high-performance building system and offer the Sanger ISD the opportunity, not



only to be the first school in Texas to be designed with this system, but to enjoy savings on their utilities and have a building that is strong and energy efficient.

Sanger ISD accepted Competitive Sealed Proposals on May 8, 2007 and awarded Lloyd Plyler Construction a contract for \$152.00/sf, which includes the ICF wall system in the academic wings of the building. The overall project came in under the specified budget and enabled the District to become the leader in Texas with a school that is high-performance, energy efficient and accepted in the LEED world as meeting many of the stated objectives for this movement in schools.

The design of the new Sanger Elementary School is compact and efficient in and of itself. The two-story classroom wing, along with an assembly of closely-related public spaces, offers its patrons a warm and inviting place to teach and learn. Huckabee continues to lead the way in innovative design of building systems for our clients. Research and implementation of progressive, new products that enable school districts to reap financial benefits in the form of “true dollar savings” is what we’re all about!