

AS SEEN IN NATIONAL ENGINEERS WEEK

Preserving Historic Structures at the Longview Show Horse Arena

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In August 2005, Lee's Summit R-7 School District opened the doors to its sixteenth elementary school, Longview Farm Elementary. The school became the home of the Stallions when it welcomed six hundred and fifty western Lee's Summit's students grades kindergarten through sixth. However, when the structure was built in the early 1900s, it was actually intended for horses.

The building was originally the Longview Show Horse Arena. With one hundred and fifty stalls, it was thought to be the world's largest indoor arena. It was constructed by Robert Long, owner of the Long-Bell Lumber Company, as part of a self-sufficient community known as "The World's Most Beautiful Farm." Many of the farm's forty-four buildings have since been placed on the National Register of Historic Places.

Longview Farm's historic buildings are now being restored by Gale Communities as part of an endeavor named "New Longview." The planned community incorporates a residential area consisting of a variety of home designs reminiscent of the 1910s to 1930s, a pedestrian-friendly commercial district, and fifty acres of parks and green space. The development borders Longview Community College and Longview Park. In a collaborative effort between the Lee's Summit School District and Gale Communities and the city of Lee's Summit, the stables and horse barn have been converted into an elementary school to serve the expanding populace. In an effort to facilitate the preservation of the historic structures, the City of Lee's Summit granted Gale Communities TIF (Tax Increment Financing) monies. As a result of the savings that Gale Communities has passed on to the school district, the facility has been provided to the community at a discount to the tax payers.

The Hollis & Miller Group, the architects who led the transformation of the horse arena into a state of the art elementary school focused on protecting the historic integrity of the

building and keeping as much of the original structure as possible, which posed some design and construction challenges. To ensure the safety of the occupants, the structure had to be evaluated against design criteria of the 2000 International Building Code. Wind, seismic and snow loads on a building are multiplied by an importance factor determined by the use of the building. An agricultural building is designed for a lower importance factor than that of an elementary school. Because the original use for the building was as a horse barn, there was concern that the capacity of the structure would not meet the loading requirements for an elementary school. The original structure was analyzed, and it was determined that only minimal alterations were required to meet today's building code.

In the horse stalls, the original structure was comprised of heavy timber post and beam framing with connections made of cast iron. The bases of many of the posts were damaged because the horses had gnawed on the wood over the years. The bottom of these posts were cut away and replaced by steel columns anchored into the existing concrete. Other modifications included replacing members that had weather damage, nailing a new layer of plywood sheathing to the existing studs, and providing hurricane ties and straps at the roof rafters.

The original construction documents dated May 15, 1913 were drawn by architect Henry Hoit, who also designed the Kansas City Power and Light Building. The drawings included very detailed specifications of the cast-iron columns and bow trusses in the arena, which is now the gymnasium and cafeteria. When analyzed, the cast-iron structure met current de-



sign criteria. However, once demolition began, it was discovered that the base of several of the columns had corroded severely. Normally in this circumstance a structural engineer might recommend welding steel shapes to the existing column to reinforce it. However, because the framing is cast-iron instead of steel, an alternative fix was designed using a concrete wrap and bolted connections.

Many architectural adornments were salvaged and recycled through out the building. The original barn doors and horse stall partitions were restored and suspended to separate the space in the arena. The gravesite marker of prize-winning show horse, Revelation, is still displayed at the entry. Salvaged wood members have been reclaimed to support the eye-brow canopies on the exterior of the new addition.

One treasure that was discovered during the renovation that was unable to be saved was a hand painted portrait of Loula Long Combs, daughter of Robert Long. The portrait was painted on the concrete wall of the boiler room by one of the horse jockeys in tribute to the "Queen of the American Royal." The school district has named the school campus in her honor. Bob D. Campbell and Company is proud to be a part of the restoration of the Longview Show Horse Arena, and as the motto of the Longview Farm Elementary School announces, "The Legacy Continues."