



Tpac Builds

WITH HIGH-PERFORMANCE ARCHITECTURAL PRECAST

Photos: Tpac.

Midwestern University's College of Veterinary Medicine, Equine and Bovine Center's newest facility is a state-of-the-art medical and rehabilitation facility, and is the third facility of the Veterinary Medicine program. The 70,000 square foot facility is a community resource, and a center for veterinary education, research, and pathology. The University, as an educational institution, is able to provide affordable veterinary services, and hired faculty and students can continue to engage in equine and bovine medicine and practices to benefit Arizona's livestock owners. The new center includes teaching workshops, stalls and paddocks, treatment areas, and anesthesia and recovery areas, housing for 20 cows and 20 horses, and support structures for feed, bedding and storage. Midwestern University's College of Veterinary Medicine is the first and only veterinary medical college in Arizona, and the facility is providing and promoting hands-on experience and teaching, helping to bring new professionals to the region.

Extensive coordination among the design, engineering and precast teams was necessary to ensure that the College of Veterinary Medicine's rigorous project requirements were met. With the majority of the structure comprised of precast components, an onsite crane for erection and installation, a project team facilitating installation and construction, and the current University facilities open for classes and services, the project activities had to avoid any potential disruption and meet an expedited schedule. Tpac provided all precast products and completed the crane erection of the facility in a 28-day period.

Tpac's precast scope consisted of 289 architectural and structural pieces that played a large role in the project design and construction. Precast used in this project includes hollow core, insulated walls, solid walls, architectural panels, and architectural brick inlay panels. The precast, prestressed wall panels were cast with custom tile size thin brick, providing the owner with the benefits of cost- and time-savings over full-size, hand-laid brick.



A special architectural color scheme and mixed brick pattern enhances this aesthetically pleasing project, and coordinates with the same design on existing University buildings including the Auditorium, Wellness Recreation Center, and Animal Companion Clinic. The buildings incorporate elements from local colors and styles, and are a study in architectural design. All wall panels and the required architectural face were mixed to a specific brick color match.

While the campus buildings retain many standard educational qualities, a higher level of architectural treatment was applied to the design. The wall panels feature reveal work that adds depth and visual appeal to the buff sandblast finish. The panels are also topped with a cornice for additional architectural detail. The roof level features a reveal and recess pattern that mimics the window design and pattern, to create an upward aesthetic. The building features several wall and side panels that are sloped, incorporating distinctive angles to the project.

Three different colors of brick created the pattern blends that compose the architectural skin of the facility. Of the project's 37,161 square feet of exterior wall area, 39% consisted of inset thin brick. The distinct combination of brick colors includes Desert Ironspot Light, Coppertone, and Medium Ironspot #46. Additional detailed design effort is shown by the soldier course brick line across the top of the panels, as well as the visual soldier line in the center that creates a visual break, softens the lines, and captures the unique design pattern.

Multiple forms were used to create different textures and variations in the project. The form pattern stacks and alternates the six brick colors in a gradual blend from lightest hue to darkest, moving the tints and shades downward, creating an aesthetic visual draw showcasing native Arizona colors. The brick design pattern required extensive collaboration between DWL Architects + Planners, Phoenix, Arizona, and the Tpac team to ensure the aesthetic detail of the project was given careful consideration. Specific diagrams were produced by the architect, and the determined pattern was then precisely followed. Similar as they are unique, the campus buildings share a design concept, yet each is a one-of-a-kind creation.



The architectural exterior of the structure, designed to complement the earth tones and muted colors of the state, is comprised of a combination of buff, reddish-brown and dark red colored pieces. Striking variations of colors and textures were achieved by adding recesses and reveals. Integral sills and cornices were also incorporated into the complementary structural panels as additional design elements. The roof spandrels on all four sides of the structure are a complementary gray color and feature a distinctive square design that mimics the window shapes for an upward aesthetic.

Various sizes of wall panels were produced on a long-line production facility, allowing the walls to maximize the structural capacity and create an economical, architectural wall panel. The wall panels are designed to meet ASHRAE energy requirements, project economies and insulation requirements. The University decided to create a total precast structure incorporating an architectural sandblast cornice to minimize future maintenance costs. The owners stressed the need for superior quality with astute attention to detail, as well as the need for rapid construction. The entire project, from design to erection and finishing, was completed in 20 months.



Tpac, an EnCon Company, is a recognized regional leader in the design, manufacture and erection of total precast concrete structural systems. With a longstanding history of over sixty years serving as a specialty contractor providing engineered concrete products and services to local construction communities, Tpac manufactures a wide range of architectural and structural building components. Tpac is located on an approximately 60-acre production facility, and serves Arizona, Southern California, Nevada, Utah, New Mexico and West Texas. Our decades of experience, combined with time-tested technology, make Tpac a leader in providing economical solutions and a rapid delivery system to meet today's construction environment.