



## FRAMED SHADE STRUCTURE

Anyone who has spent any time in the Arizona landscape appreciates the value of shaded areas. It's a given for designing infrastructure, and built into new construction specifications such as this project for the Silverbell Army Heliport in Marana, part of the Western Army National Guard Aviation Training Site (WAATS) located in the heart of the Sonoran Desert and northwest of Tucson.

The Department of Emergency & Military Affairs (DEMA) called for a special shade project to mitigate the harsh sun for maintenance crews at the Silverbell heliport flight center where helicopters are regularly serviced between flights. DEMA's primary request was to provide shade using a tension structure with span clearances that could not be achieved by typical framed hip roof structures.

International Tension Structures (ITS) received the commission to design and fabricate a structure that spanned 65 feet between support columns while also giving sufficient height clearance for maintenance equipment and helicopters. DEMA's specs required shade coverage of 25,000 square feet, and a construction schedule that was sufficiently short so as to not interrupt Silverbell's daily operations and steady training of pilots.

ITS developed a repeated barrel vault design that mirrors the components of helicopters, such as the curve of blades when at rest, compression struts for the frame mimicking rotor and drive shafts, and beams and bracing looking like landing skids.

"We took time during the design process," says Jacob Schwartz, ITS owner, "to study all of the parts of the specific helicopters being used on the base and then developed the architectural lines and general shapes in an abstract manner. From there, we detailed the structural components while checking the developing design back against those initial helicopter components and abstract images to make sure our concept and the helicopter theme was realized in the final structure."

DEMA specified the fabric color: mid-beige. "The military was adamant about using the color that kept with everything else on the base," Schwartz says. "We even kicked around the idea of using a PVC with a camouflage graphic on it but that was turned down."

The client and end users are impressed that the structure was able to exceed the clearances and Army's program requirements. ITS's project team was pleased at the helicopter-inspired structural components and how they worked well architecturally. A true case of form following function. —BW

### PROJECT DATA

#### CLIENT

Department of Emergency & Military Affairs

#### ENGINEERING, DESIGN, FABRICATION AND INSTALLATION

International Tension Structures

#### FABRIC

Commercial 95  
by Gale Pacific