

## WinStar Casino Upgrade

### Background

The WinStar Casino, owned by Chickasaw Tribe of Oklahoma, has the third largest casino floor in the world. Nearly two-thirds of the 300,000 sf is housed in fabric structures. Since the original manufacturer failed to meet code compliance and due to the harsh Oklahoma climate, the tribe felt it was necessary to be pro-active in ensuring that the fabric structures were upgraded to meet the 2009 International Building Code. Having successfully upgraded and refurbished several of our competitors' structures, Signature's reputation as the 'fix it' guys made us the obvious choice for this project. Signature's solution oriented approach to design and engineering, combined with essential project management and coordination brought this complex project to a successful completion.

### Solution

Signature's code compliance review, which includes structural analysis, revealed that steel would need to be added to the structural members to meet the new codes and provide increased collateral loading. The upgrade package consisted of steel I-beam, I-beam attachment system, new membrane, membrane attachment system, additional door and vent framing, door hood additions and drainage control. The package was completed with revised calculations, stamped drawings and a warranty of the work performed. Signature was responsible for the entire upgrade from design to installation and factored in the tribe's concerns and requirements. It was critical that the casino not be shut down during the upgrade process. Following a strict safety plan, Signature devised a method that allowed the new addition to be completed without hindering day to day operations. Though the plan required significant design efforts and a long term construction strategy, Signature met the requirements of the Chickasaw Tribe and developed a solution that allowed for 540 tons of steel to be raised without having close the casino doors, a first in the industry.

### Details

The existing structures spans 154'x460', 165'x345', 175'x100'. Signature designed a custom bolt-on steel system that attaches to the existing truss and allows for the integration of the new membrane. The bolt-on steel truss addition consisted of 8"x8" I-beam that attached at the existing purlin locations. Kedar track drilled into I-Beam served as the attachment point for the membrane to the new truss. A tensioning system had to be designed to tension the new fabric. Mehler FR1000 Mehatop F-Type III 31oz PVC membrane in a custom tan color was chosen for its long life and durability in harsh conditions. Signature worked with local HVAC providers to redevelop penetrations to eliminate water and leak issues. Door Hoods and water diversion are among the numerous other 'enhancement' items the Tribe asked Signature to address while on site.

