

Acoustics and Audiovisual Design for a Large-Scale Entertainment Expansion



VISION

Create a flexible entertainment venue capable of hosting large-scale amplified events while supporting acoustic comfort and operational compatibility across the resort.

PARTNERSHIP

Coordinate with the architect and theater consultant to integrate acoustic and AV strategies into a complex, performance-driven facility.

VALUE-ADD

Deliver acoustic control and robust AV infrastructure that supports touring productions, broadcast needs, and long-term venue flexibility.

WinStar World Casino and Resort is located just north of the Texas–Oklahoma border and is widely recognized as one of the world’s largest casino destinations. The project includes a new 6,500-seat event center designed to support popular music performances and boxing or mixed-martial arts events, along with a pre-function space sized to adequately support the venue. The expansion also includes a new 303-key hotel tower with a restaurant and a 9,000 SF spa.

Trinity Consultants provided acoustic and audiovisual consulting services for the event center and associated program elements. The scope addressed both performance requirements for large-scale entertainment and sound control strategies to protect adjacent uses within the broader resort environment.

VISION

The new event center was intended to attract high-profile touring acts and live sporting events while operating as part of a continuously active casino resort. Acoustic performance needed to support amplified programs at scale, while sound isolation was critical to prevent noise transmission into surrounding areas. The design also needed to accommodate production requirements typically associated with touring venues.

PARTNERSHIP

Trinity Consultants worked with HBG Design and theater consultant Schuler Shook to support the acoustic and audiovisual integration of the event center. Coordination addressed architectural assemblies, building systems, and venue infrastructure to align performance goals with constructability and operational needs.

VALUE-ADD

The acoustic strategy for the event center focused on reverberation control and sound isolation within a volume exceeding three million cubic feet. A combination of acoustic treatments was implemented, including insulation at the underside of the roof deck, acoustical wall panels, and arrays of acoustic baffles, to achieve reverberation times appropriate for amplified performances. Sound isolation measures included multi-stud, multi-layer gypsum board partitions around the auditorium and stage, along with acoustically treated smoke evacuation pathways to prevent sound leakage through system penetrations.

Audiovisual design included complete AV systems for the event center, including sound reinforcement and monitor systems, control consoles, production and broadcast video, production communications, page and program audio, digital signage, ADA assisted listening, and a flexible infrastructure supporting both in-house production and touring systems. The system configuration allows artists to perform fly-in engagements without transporting full production packages, reducing dark nights and expanding booking opportunities for the venue.

ARCHITECTS
HBG Design

THEATER CONSULTANT
Schuler Shook

ACOUSTICS, AV
Trinity Consultants Built Environment