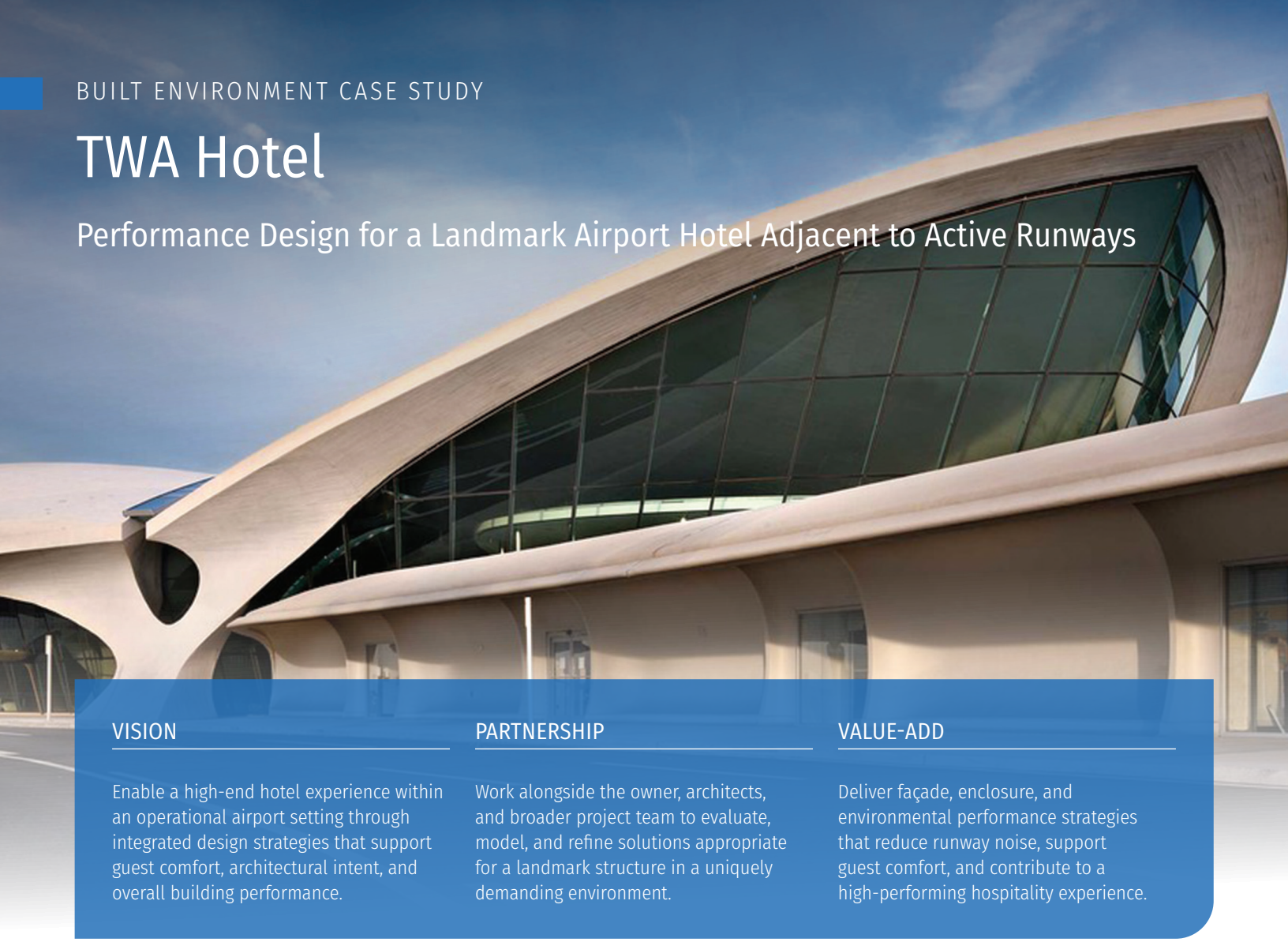
BUILT ENVIRONMENT CASE STUDY

TWA Hotel

Performance Design for a Landmark Airport Hotel Adjacent to Active Runways



VISION

Enable a high-end hotel experience within an operational airport setting through integrated design strategies that support guest comfort, architectural intent, and overall building performance.

PARTNERSHIP

Work alongside the owner, architects, and broader project team to evaluate, model, and refine solutions appropriate for a landmark structure in a uniquely demanding environment.

VALUE-ADD

Deliver façade, enclosure, and environmental performance strategies that reduce runway noise, support guest comfort, and contribute to a high-performing hospitality experience.

The TWA Hotel is located at John F. Kennedy International Airport and centers on the restored, iconic Eero Saarinen-designed TWA Flight Center. The 512-room hotel sits directly adjacent to active runways, placing guest accommodations in close proximity to continuous aircraft operations and high exterior noise levels. Trinity Consultants supported the project with specialized design services focused on façade performance, guestroom construction, and environmental control strategies required to support hospitality use within an active aviation environment.

The project also drew on the long-standing relationship between our team and this site: our original partnership on the building dates to the original 1962 Saarinen structure. JB&B, a Trinity Consultants team, served as MEP engineer, integrating upgraded building infrastructure and life-safety systems within the landmarked Flight Center and the new hotel wings.

OWNER
MCR Development and Morse Development

DEVELOPER
MCR Development

RESTORATION ARCHITECT
Beyer Blinder Belle

DESIGN ARCHITECT
Lubrano Ciavarra Architects

MEP
Jaros, Baum & Bolles, a Trinity Consultants team

ACOUSTICS/AV/IT/SECURITY
Trinity Consultants

Trinity Consultants | JBB

VISION

The TWA Flight Center at JFK is among the most celebrated works of 20th-century American architecture. Designed by Eero Saarinen and opened in 1962 as the terminal for Trans World Airlines, it was designated a New York City landmark in 1994 and listed on the National Register of Historic Places in 2005. After standing vacant for nearly two decades, the building was restored and transformed into the TWA Hotel by MCR/Morse Development, opening in 2019. Two new six-story hotel wings housing 512 guestrooms were added behind the Flight Center, and a 50,000-square-foot subterranean conference center was constructed between the original connecting tubes. The restored terminal serves as the hotel's lobby and the centerpiece of its restaurant and event program.

The site presents an unusually demanding performance environment. The new hotel wings sit directly adjacent to active runways, exposing guestrooms to continuous high-level aircraft noise. The project required high-performance design solutions capable of mitigating that exterior noise while maintaining the transparency and openness central to the architectural concept. Guestroom comfort was a primary performance driver, alongside the need to support amenity spaces exposed to both aircraft noise and on-site building systems. Balancing those requirements against landmark preservation obligations and the architectural language of the new wings defined the scope of Trinity's work.

PARTNERSHIP

Trinity Consultants worked with the project team, including Beyer Blinder Belle as restoration architect and Lubrano Ciavarra Architects as design architect for the new hotel wings, to evaluate and implement performance strategies compatible with both the historic terminal and the new construction. The work required close coordination around façade systems, building assemblies, and infrastructure to align environmental performance goals with the demands of an active airport setting.

JB&B, a Trinity Consultants team, served as MEP engineer for the project, integrating upgraded building infrastructure and life-safety systems within the landmarked Flight Center and the new hotel wings to meet modern performance standards while preserving the architectural intent of the original Saarinen building. The partnership on this structure dates to the original 1962 commission, giving the team a depth of familiarity with the building's systems and fabric that informed their approach to the renovation and expansion.

VALUE-ADD

Project services included testing and evaluation of multiple curtain wall systems, resulting in the selection of a seven-pane glass curtain wall system by Fabbrica measuring approximately 4.5 inches thick. The curtain wall achieves a Sound Transmission Class rating of 45 and supports floor-to-ceiling, full-width glazing while reducing aircraft noise transmitted into guestrooms. Additional measures included specialty guestroom construction, performance planning for the rooftop pool area, and mitigation strategies related to major rooftop infrastructure serving the site.

As a signature element of the acoustic design process, Trinity Consultants conducted laboratory testing of multi-pane window assemblies and performed advanced modelling and simulation within its Immersive Studio. This process allowed the design team to experience simulated guestroom conditions during aircraft takeoff, directly informing the refinement of façade and enclosure performance before construction.

These combined approaches support a hotel acoustic environment that the developer described at the time of the project as among the quietest in the world for an airport-adjacent property—a performance outcome made possible by the integration of façade testing, immersive simulation, and coordinated enclosure design from early in the process.

ABOUT TRINITY CONSULTANTS

Trinity Consultants, a leading global environmental consulting firm, provides services and solutions in the EHS Regulatory Compliance, Built Environment, Life Sciences, and Water & Ecology markets. Founded in 1974, Trinity has the technical expertise, industry depth, and capabilities to help clients achieve their goals across the natural and built environments.