

Case Study: Dallas Architectural Icon Retrofitted with High-Performance Aluminum Windows

The 36-story Gables Republic Tower Building in downtown Dallas, formerly known as the Republic Bank of Texas, is unique in the annals of American architectural construction, being one of only two high-rise structures in the U.S. with a ¼-inch thick aluminum skin. (The other is the ALCOA headquarters building in Pittsburgh.) Clad in interlocking aluminum plates, emblazoned with the bank's silver star symbol, the Tower Building was designed to integrate the use of aluminum with a structural steel frame for a lighter, energy-efficient structure.



Built in 1954, this tallest of all aluminum-skin buildings was designed by New York architect, Wallace K. Harrison, whose credits include the United Nations World Headquarters. One of Dallas' first modern skyscrapers, the 602-foot tower was an eye-catcher right from the start with its lighted 150-foot "rocket" spire on the rooftop.

In 2005, the building was acquired by developer, Gables Residential Trust, with the intention of converting the landmark to residential apartments in a \$46 million renovation project. Completed in 2007, it is now home to hundreds of downtown residents, living in one- and two-

bedroom luxury apartments and four penthouses. Each floor has nine apartments averaging 1,175 square feet. Four penthouses average 2,500 square feet. The building also features a new lobby and entrance, fitness center, rooftop garden and pool.

Graham Architectural Products was awarded the contract to replace the original aluminum pivot windows. Demanding historical accuracy standards were imposed, with several million dollars in tax increment financing at stake. "By working closely with Gables, RTKL Architects, Architexas (historical specialist architects), and Curtain Wall Design Consultants, the manufacturer's fixed and projected/

casement windows allowed the original windows' historical sightlines to be maintained, as required by both the State of Texas Historical Department and the National Park Service," said Cliff Helterbran, local manufacturer's sales rep. A larger custom frame extrusion was needed to accommodate the existing screw-and-bolt mountings. A custom-designed offset 'sill tank' allows the exterior window sill to sit back ¼-inch for a better exterior caulking bead.

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Energy efficiency was a key factor as well, and the new aluminum windows provided the owner with leak-free, air-tight performance. The high-performance low-E glass also helped keep the park service happy because of its clear appearance, noted Helterbran.

In addition, noisy cooling towers on

an adjacent building made it necessary for the building's replacement windows to meet stringent acoustical requirements. Sound Transmission Class (STC) ratings for the aluminum windows range from 32 to 44 throughout the building's north-east elevation.

Before the project was finally awarded, the manufacturer had

installed three mock-ups. The third and final mock-up, installed in November 2005, was equipped with such special features as custom 4-bar hinges, Class I clear anodized finish, custom frame for screw-and-bolt attachment, custom sill tank, 4" limit stops, matching historical sightlines, custom cam handle and scaffold tie-off buttons.