

*Whitestone Bridge Fairing,
New York, Installed 2003*



The Bronx - Whitestone Bridge was completed in 1939, following a similar design concept to the Tacoma Narrows Bridge. Following the collapse of the Tacoma Narrows Bridge additional steel trusses were added to the bridge to reduce the risk of resonance of the bridge under wind loading.

Over time the surface of the roadway was also increased to cope with heavier traffic loads. The resulting increase of dead load was resulting in excessive stretch of the main cable stays, and in 2003 a program of weight reduction was started for the bridge.

A major part of this was replacing the steel trusses on the side of the bridge with aerodynamic FRP fairings. Gurit engineered the fairings, which were manufactured in the USA using resin infused solid glass laminates.

The project had a total of 20,000m² of fairing, which made it the largest use of structural composites at the time. Replacement of the trusses and other changes to the decking reduced the bridge's weight by 6000 tons, some 25% of the mass suspended by the cables.