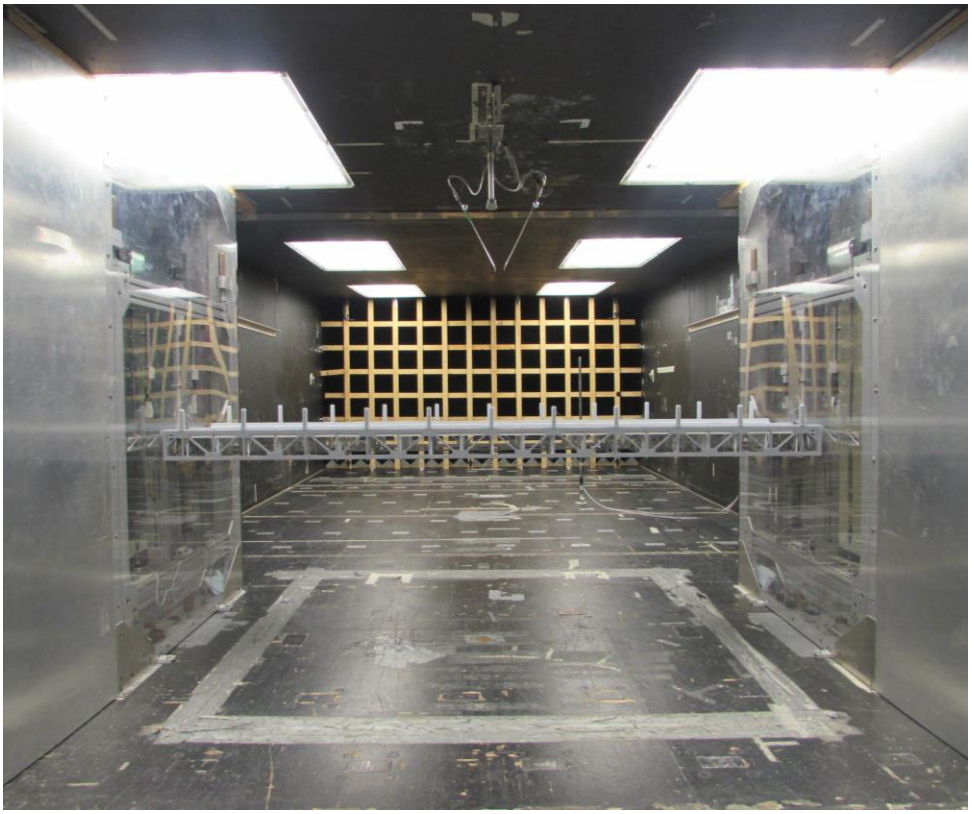
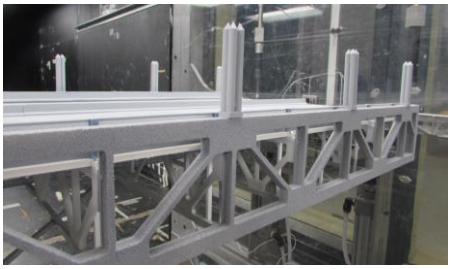
Throgs Neck Bridge, New York

Wind Engineering Study





Client Weidlinger Associates Inc	*Length* 2910 ft	*Main Span* 1800 ft
Deck Width 92.7 ft	*Year Tested* 2014 ~ 2015	*Model Scale* Section Model: 1:60

The Project

The Throgs Neck Bridge has a main span of 1800 ft and two side spans of 555 ft each, spanning the East River and connecting the boroughs of Bronx and Queens. The wind tunnel studies were performed to assist in the rehabilitation of the suspended portion of the bridge deck from the Queens Anchorage to the Bronx Anchorage with the aim of improving the load capacity of the roadway and meet current seismic criteria.

The Wind Tunnel Studies

The wind engineering studies for the Throgs Neck Bridge includes an examination of the wind climate at the bridge site and testing of section models of the existing bridge as well as a version with an orthotropic deck and different barrier / fence configurations. The wind tunnel program involves static and dynamic section model tests as well as evaluation of the aerodynamic derivatives.

The 1:60 scale section models of the bridge deck were tested in both smooth and turbulent flow conditions. The static coefficients were measured; the stability characteristics as well as the response to turbulence of the existing and the orthotropic deck were evaluated. The experimental work also includes different intermediate stages of construction of the deck with a movable barrier system. Equivalent static loads were developed to assist in the design.

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