

IART 043
Strength Testing of Bronx-Whitestone Bridge Model Deck

Ben T. Yen

Emeritus Professor, Department of Civil and Environmental Engineering, Lehigh
University, Bethlehem, PA

WanChun Jen

Graduate Student, Center for Advanced Technology for Large Structural Systems, Lehigh
University, Bethlehem, PA

Abstract

Steel orthotropic decks with trapezoidal-shaped longitudinal stiffeners (ribs) are subjected to direct vehicular loads and axial forces from bridge loading (including bridge self weight, wind, etc.). There is no known information on the strength of such ribs subjected to simultaneous compression and bending. The objective of this project is to evaluate through testing and analysis the strength of trapezoidal stiffeners subjected to axial compression and transverse loading. The model deck of Bronx-Whitestone Bridge, tested for fatigue endurance, is utilized for the study. Partner organizations include Weidlinger Associates (NY), Kunkin Associates (PA), Modjeski and Masters (PA), and the Triborough Bridge and Tunnel Authority (NY).