

The Neches River Bridge, Port Arthur, TX, USA

Wind Engineering Study



Owner	The Texas Department of Transportation	Design	Figg and Muller Engineers, Inc. Tallahassee, Florida	Year Tested	1985
Length of Superstructure	9440 feet	Span Lengths	140 / 240 640 / 240 / 140 feet	Shipping Clearance	134 feet
Tower Height	272 feet	Deck Depth	8 feet	Deck Width	56 feet

The Project

This concrete box girder, cable-stayed bridge is part of a 9440-ft. structure crossing the Neches River near Port Arthur, Texas. The cable-stayed portion consists of a 640-ft. main span, two 280-ft. side spans with two 140-ft. end spans

The Wind Tunnel Studies

Wind engineering studies for this cable stayed bridge in the Hurricane-prone gulf coast region included:

- A Monte-Carlo hurricane simulation of the Houston region was performed to define the wind field at the project site.
- Static and dynamic section model tests were conducted for the bridge. Tests were performed in smooth flow to establish stability characteristics and in turbulent flow to develop the response to turbulence.
- The results were integrated with the meteorological to provide design wind loads using the Equivalent Static Load technique, which was developed by the Laboratory in connection with the studies for the Sunshine Skyway bridge.



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FSBR/12/August 2000/PK
Last Printed: July 10, 2007