

PROJECT BRIEF

Strengthening of Beams and Columns of Tong Cheng River Bridge with the TYFO® Fibrwrap® Composite System



Suzhou, China
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Built in the mid-1970's, the Tong Cheng River Bridge is located in Kunshan City, about 45km from Suzhou. Over the years, it has seen tremendous increase in volume of traffic and has suffered damaged by boats passing under the bridge.

An investigative report on the bridge found that many of the T-beams and columns of the bridge were damaged by spalling of concrete – the result of corrosion due to adverse environment and the impact from collision by boats. Over time, design wheel load on the bridge also increased from a maximum of 10 tons to 15 tons. The Suzhou Transportation Department ruled that the bridge was under-strength and hence required strengthening together with corrosion protection.



The TYFO® Fibrwrap® Composite System was proposed for the retrofitting work to address the needs of structural strengthening coupled with corrosion protection. The TYFO® Fibrwrap® Composite System not only strengthens the wrapped member but also forms a barrier against corrosion promoting agents. Its high strength-to-self-weight ratio and speed of application also contributed to its selection as a retrofit system over conventional methods of strengthening. The entire bridge was retrofitted within a short duration of 5 days. In order to test the effectiveness of the TYFO® Fibrwrap® Composite System in strengthening the bridge, both dynamic and static load tests were conducted with strain gauges installed at appropriate locations along the bridge. The results from the tests were found satisfactory and thus endorsed the effectiveness of the TYFO® Fibrwrap® Composite System.

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