

PROJECT BRIEF

Strengthening of Arch Bridges with the TYFO® Fibrwrap® Composite System


Guangyan District-
Chengdu, China
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The Xiaojiaba and Long Dong Bei bridges are found in the mountainous region of central China's Sichuan province. These two similar arch bridges, each spanning about 120m across a deep chasm, were found to be under-designed for shear and flexural capacity due to the estimated increase in new traffic loads in a few years' time. Various strengthening schemes for the deficient elements were put forward. Due to the extreme depth of the chasm, conventional and bulky strengthening methods using heavy machinery were not feasible.

The high-strength TYFO® SEH-51 Fibrwrap® Composite System was proposed and adopted due to its ease, speed of installation and lightweight nature, to strengthen the existing bridges for the shear and flexural deficiencies. The TYFO® Fibrwrap® Composite System uses aerospace technology and material, i.e. carbon/glass/aramid fibres and epoxy composites; it works on the concept of wrapping structural members such as columns, beams, slabs and walls to enhance their ductility and load carrying capacity.

Only a light-duty gondola system was used to carry out the work at the bridge soffit eliminating the need to cordon off the bridge. The entire operation was completed in about 2 months' time to the satisfaction of all concerned.

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