

Strengthening Bridge Piers by Carbon Fiber Reinforced Polymer (CFRP): A Case Study for Thuan Phuoc Suspension Bridge in Vietnam

Authors : Lan Nguyen, Lam Cao Van

Abstract : Thuan Phuoc is a suspension bridge built in Danang city, Vietnam. Because this bridge locates near the estuary, its structure has degraded rapidly. Many cracks have currently occurred on most of the concrete piers of the curved approach spans. This paper aims to present the results of diagnostic analysis of causes for cracks as well as some calculations for strengthening piers by carbon fiber reinforced polymer (CFRP). Besides, it describes how to use concrete nonlinear analysis software ATENA to diagnostically analyze cracks, strengthening designs. Basing on the results of studying the map of distributing crack on Thuan Phuoc bridge's concrete piers is analyzed by the software ATENA is suitable for the real conditions and CFRP would be the best solution to strengthen piers in a sound and fast way.

Keywords : ATENA, bridge pier strengthening, carbon fiber reinforced polymer (CFRP), crack prediction analysis

Conference Title : ICCSGE 2017 : International Conference on Concrete, Structural and Geotechnical Engineering

Conference Location : Kyoto, Japan

Conference Dates : April 27-28, 2017