

PROJECT BRIEF

Repair of Concrete Spun Piles and Corrosion Protection of Navy Jetty with the Tyfo® Fibrwrap® Underwater Composite System



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During construction of this new naval jetty in Singapore, routine inspection revealed longitudinal cracks on the surface of the reinforced concrete spun piles supporting the jetty. While an extensive structural investigation was commissioned immediately, the defense ministry required the defective piles to be simultaneously repaired and strengthened.

An invitation to study the problem and provide an appropriate solution to the underwater repair and strengthening of the defective piles was sent out to various structural strengthening companies. The structural strengthening proposal required not only recommendation of a strong and durable strengthening material for retrofitting but also a solution to the problem of underwater application and curing of such materials. After examining relevant data and pictures, it was concurred that the transverse reinforcement of the piles had yielded, resulting in the extensive vertical cracking.

To repair the damage, the TYFO® Fibrwrap® Underwater Composite System was proposed to confine defective piles. Its high strength, durability, ease and speed of application underwater, and ability to cure in seawater, made it the system of choice for the project. Besides being able to supplement the inadequacy in the transverse reinforcement, the system can also prevent further corrosion to the reinforcement by acting as a barrier against the corrosive saline environment. Professional divers were used to carry out the underwater installation of the system. All the defective piles were retrofitted within the given time frame with no hindrance to the operations of the base.

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