

PROJECT BRIEF

Structural Retrofit and Corrosion Protection of RC Beams and Columns at a Chemical Production Plant with the TYFO® Fibrwrap® Composite System



Bangkok, Thailand
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This project illustrates the superior benefits of the TYFO® Fibrwrap® Composite System as an effective and durable composite strengthening system, as compared to conventional techniques. This chemical production plant in Bangpoo Industrial Park had structural deterioration in its RC beams and columns as a result of corrosion. With harsh environmental conditions due to its production of ammonium chloride, many unprotected RC structural members had badly corroded steel reinforcement, spalling of concrete and cracks. The steel plates used to strengthen some RC beams were also severely corroded within a year of installation. The technical department of the plant was tasked to urgently reinstate these damaged RC members and to enhance their durability.

The added requirement of zero disruption to plant production made this an uphill task. Current conventional techniques of concrete jacketing and steel plate bonding have limited benefits. Fyfe Asia's specialist team in Thailand was consulted to provide an appropriate solution. After assessing the situation, the TYFO® Fibrwrap® Composite System was proposed for the retrofitting work as a viable material to address simultaneously the needs of strengthening, corrosion protection and long term durability. With its composite technology derived from the aerospace industry, rendering it a light-weight but strong material, it was chosen over conventional methods due to its speed and ease of application in difficult site conditions.

The chemical plant was given a new lease of life, with all damaged members retrofitted with the TYFO® Fibrwrap® Composite System. Plant operation was unaffected throughout the 20-day period of retrofitting work. The project was completed to great satisfaction of the plant management and technical department. With this success, Fyfe Asia's specialist team was awarded another retrofitting project at another plant owned by the client.

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