

PROJECT BRIEF

Column Strengthening for Addition of New Floors at Zhong Hua Primary School with the TYFO® Fibrwrap® Composite System

SINGAPORE



Singapore
August 2001



Zhong Hua Primary School was one of the schools earmarked as part of an island-wide project by the Singapore Ministry of Education to upgrade and increase student capacity of schools more than fifteen years old.

This old two-storey school building was to be converted to four stories, and a new six-storey structure was to be built next to the existing building. The resulting increase in dead and live loads due to the additional two stories precipitated the need to strengthen the existing concrete wall-like columns by more than fifty percent. The initial proposal by the consultant was to enlarge the existing columns by concrete jacketing but it was rejected due to the architect’s disapproval for aesthetic reasons as well as the short time frame given by the client. After a thorough structural analysis, a proposal recommending the use of the high strength TYFO® Fibrwrap® Composite System together with a combination of pre-cast column stumps was submitted to take care of the heavy load demands. By producing pre-cast concrete column stumps away from the site work could proceed at a faster pace. The stumps would then be installed by abutting them adjacent to the existing columns; finally, both existing column and new stump would be integrated by grouting the joint and finally confining together with the TYFO® Fibrwrap® Composite System.

The success of this project demonstrates that the TYFO® Fibrwrap® Composite System can be used effectively in conjunction with other innovative retrofitting techniques. A total of 70 columns at Zhong Hua Primary School were strengthened using this dual approach. The time taken to complete the work was about two months, roughly half the time as that of any other conventional strengthening method.

FYFE Asia Pte Ltd

8 Boon Lay Way, #10-03 Tradehub 21, Singapore 609964

Tel: +65 6898 5248 • **Fax:** +65 6898 5181 • **E-mail:** info@fyfeasia.com • **Web:** www.fyfeasia.com