

PROJECT BRIEF

Seismic Strengthening of Earthquake Damaged Silicon Chip Factory with the TYFO® Fibrwrap® System



Taipei City, Taiwan  
October 1998



This four-storey, thirty-year-old factory building on the outskirts of Taipei City, Taiwan, was not designed to withstand seismic forces. During the 7.6 magnitude earthquake of September 1999 in Taiwan, the building was seriously affected with about eighty percent of the reinforced concrete columns and brick walls being damaged. With the structural integrity of the structure in question, production in the factory was suspended causing a shortage in production supply. To prevent further losses, the factory had to resume full production capacity in the shortest possible time.

The Fyfe Company was approached by the U.S.A.-based consultants on behalf of the factory owners to provide a quick, efficient and economical solution to restore the building to its original state and add the ability to withstand future earthquakes. The system adopted for this project was the TYFO® Fibrwrap® System. The TYFO® Fibrwrap® System uses aerospace technology and materials, i.e. carbon/glass/aramid fibres and epoxy composites and works on the concept of wrapping structural members such as columns, beams, slabs and walls to enhance ductility and load carrying capacity of the members.

A total of 44 reinforced concrete columns at the factory were strengthened with the TYFO® Fibrwrap® System to increase the axial load capacity and the shear strength of the columns. The use of the system allowed the columns to be strengthened within the shortest possible time resulting in the early re-commissioning of the factory. With the use of the TYFO® Fibrwrap® System, the rectification work to the building was completed economically within three weeks and to the satisfaction of all parties concerned.

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