

Thai Factory Canteen Floor Re-levelled



INDUSTRY

Industrial

STRUCTURE

Factory

PROBLEM

Weak ground

LOCATION

Rayong, Thailand

DURATION / YEAR

7 days / 2013

TECHNOLOGY

Uretex PowerPiles &
Uretex Slab Lifting

BUSINESS UNIT

Mainmark Thailand

Above, left & middle: Strengthening the foundation ground with Uretex PowerPiles and re-levelling the floor by Slab-Lifting this large canteen was brought back into commission. Above, right: The Uretex PowerPiles expanded more in the weaker strata and less in more dense soil. They keyed into the ground and connected the floor to dense soil deeper down.

Summary

The problem was that this factory canteen had subsided due to weak sub-base soil. The consequent subsidence had created dangerous trip hazards at several locations and had fractured many floor tiles.

This situation was corrected with Uretex PowerPiles driven into the areas of weak soil to re-establish proper building support and raise the floor back to level.

With no excavation, mess or building damage, all areas were brought precisely back to design levels. The rectification was extremely rapid, just seven days, and caused only very minimal disruption to the factory and staff.

Objectives

The primary objective was to compact the weak foundation soil areas, and so strengthening them to provide the support required to allow the floor to be raised and re-levelled.

The secondary objective was to do this economically and in the fastest and least intrusive way possible.

Solution

Our Pagani Dynamic Cone Penetrometer (DCP) testing determined that the foundation soil was very weak at depths between 1m and 3m.

Traditional methods of creating foundation ground support, inserting piles through the floor or injecting massive piers of low mobility cementitious grout are both extremely damaging to a floor and very time-consuming, disruptive and expensive.

Thai Factory Canteen Floor Re-levelled continued

To avoid those problems, we chose to use Uretek PowerPiles. They were inserted through small diameter holes, 32mm Ø, and injected with Uretek resins that expanded up to as much as 400mm when in position. They compacted the surrounding soils and remained exactly where they were placed to support the floor.

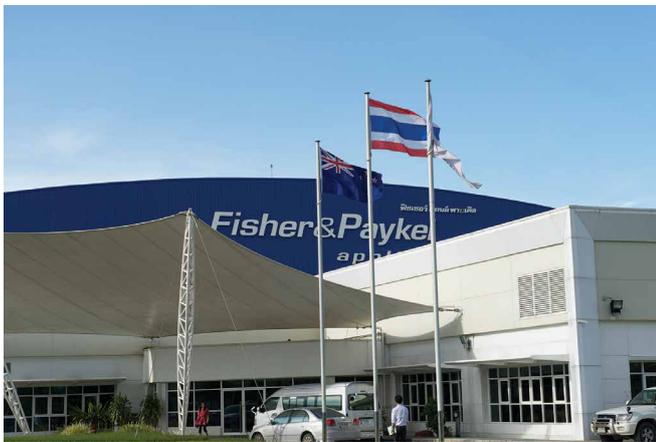
Having expanded more in the weaker strata and less in more dense soil, they keyed into the ground, bridging over the weak soil and thus connecting the floor to the more dense soil.

57 PowerPiles were installed, each 2.5m in length. They were positioned to bridge the weak strata between 1m and 3m below the surface.

The floor was re-supported and precisely re-levelled in just seven days. There was minimal mess and disruption and the project came in on budget for a delighted client.



Above: Doorways re-levelled became useable again.



Above: The Fisher & Paykel appliances factory in one of the very modern industrial estates in the eastern part of Bangkok run by the progressive AMATA Corp PCL.



Above: Flooring was re-levelled, eliminating such trip hazards.

Above: As the floor slabs were re-levelled serious cracks closed up.