



Asia

Signature Towers, Dubai Piled-raft Foundation

Description of Work

Zaha Hadid has designed the Signature Towers in Business Bay, Dubai. Originally named as the Dancing Towers, the three towers have twisted geometries. The towers are 55 to 75-storey high with a podium structure, providing a total floor area of 560,000 m².

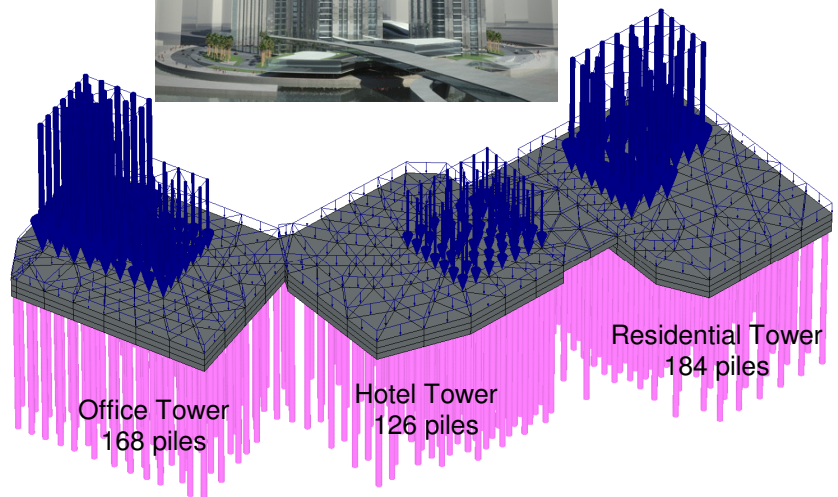
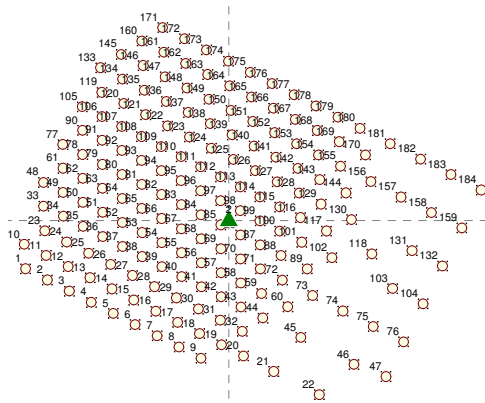
Meinhardt (Singapore), the structural consultant for the project, commissioned GCG (Asia) Ltd to assess the performance of the outline foundation design. The foundations will be three interconnected 5.5 m thick rafts supported on 480 nos 1.5 m diameter bored piles of approximately 45 m long. The ground conditions are sandy fill underlain by weak sedimentary rocks. GCG (Asia) has interpreted the field and laboratory soil test results, and derived the geotechnical design parameters.

The foundation assessment adopts 3D finite element and boundary element analyses to estimate the foundation settlement and mobilised geotechnical capacity under different loading combinations. The 3D analyses have modelled all 480 bored piles and 3 rafts for a full raft-pile-soil interaction, giving a better prediction of the foundation performance. GCG's assessment is an important component with respect to checking the feasibility of the towers foundation design.

Client: Meinhardt (Singapore) Pte Ltd

Date: 2007 - ongoing

Estimated Project Cost: US\$ 250 to 370 m



Boundary Element analysis

3D Finite Element analysis