



بسم الله الرحمن الرحيم

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3D Finite Element Analysis of Piled-Raft Foundation in Deep Clayey soils

By
Mohamed Talaat Saber Mahmoud Mohamed

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
in
Civil Engineering – Public works

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Title of Thesis:

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Key Words:

piled-raft foundation; 3D FEM; piles arrangement; clay properties; clayey soil

Summary:

The concept of piled-raft foundation has received considerable attention in recent years. This concept provides an economical foundation alternative when the performance of the raft foundation does not satisfy the design requirements, especially in deep clayey soils. 3D FEM Technique is adopted to evaluate the performance of piled-raft foundation in deep clayey soil. Afterwards, a comprehensive study is conducted to investigate the effect of related parameters including clay properties, raft thickness, pile parameters, and piled-raft configuration. The performance of each component of the piled-raft foundation is assessed.

Disclaimer

I, at this moment, declare that this thesis is my original work and that no part of it has been submitted for a degree qualification at any other university or institute. I further declare that I have appropriately acknowledged all sources used and have cited them in the reference section.

Name: Mohamed Talaat Saber Mahmoud

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Signature:

Dedication

I would like to extend my deepest gratitude to **my Parents** for their love and encouragement. Words, however, would never be sufficient to express my gratitude to **my Parents** for their continuous sacrifice and fruitful care.

I would like to extend my greatest appreciation for **my wife** for her continued encouragement and sacrifices, great thanks to her.

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