



AIN SHAMS UNIVERSITY
FACULTY OF ENGINEERING

**THE EFFECT OF TIE BEAMS ON DIFFERENTIAL
SETTLEMENT BETWEEN FOUNDATION AND
CORRESPONDING STRAINING ACTION IN TIE BEAMS**

BY

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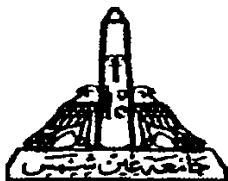
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Abstract

The work presented in this thesis is aimed to study the effect of rigidity of ground tie beams which connect foundation footings on the differential settlement between footings, and to calculate the straining actions in such beams.

The method of analysis was considerable as accurate, reliable as possible and easy for structural engineers to be applicable in the practical problems.

The models are chosen to examine the different factors which affect the analysis and relations have been established between them too.

The study of influence line of settlement was very important for the analysis, New sets of tables for influence line of settlement are established considering the dimensions of footings it self. The equations which model the I.L. are also examined, in addition to the effect of the constants of the equations on the B.M. in tie beam and differential settlement between footings.

Many models have been examined to study the effect of the different parameters on the results, relationships have been established

Keywords : *Structural engineering, Geotechnical engineering, Soil structure interaction, Beam on elastic foundation, Influence line of settlement, Ground tie beams.*

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