BIBLIOGRAPHY ON BEARING CAPACITY OF SHALLOW FOUNDATIONS

by

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SUMMARY

During the past forty years a large amount of effort has been placed on investigating various aspects of the limit equilibrium problem or bearing capacity and settlement behavior of shallow foundations on soils. This work has included; theoretical studies, small scale model studies at 1 g, centrifuge model studies, prototype size footing studies, and some full-scale studies. Most of this information is scattered about the technical literature and is not summarized in any form. This brief bibliographic assembly is an initial attempt to identify the bulk of available references relating to the bearing capacity of shallow foundations.

The compilation covers the bearing capacity of footings on both uniform granular and fine-grained soils as well as footings on nonuniform (nonhomogeneous) and anisotropic soils. Bearing capacity of footings loaded with a central vertical load as well as footing loaded with either inclined or eccentric loads and combined loadings is also covered. In addition, a few special topics are included, such as bearing capacity of footings on slopes, on reinforced soil and interference between adjacent footings. A section that covers the dynamic bearing capacity of footings is also included. The purpose of this compilation is to serve as the basis for a comprehensive design manual for evaluating the bearing capacity of shallow foundations to be prepared by the author.

BEARING CAPACITY OF SHALLOW FOUNDATIONS

3.0 BEARING CAPACITY OF SHALLOW FOUNDATIONS ON UNIFORM GRANULAR SOILS

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In most cases involving the evaluation of the bearing capacity of shallow footings or mat foundations constructed on natural soils the soil materials underlying the foundation represent nonuniform conditions. In fact, it would be an unusual situation to expect that the subsurface conditions would represent a uniform; homogenous deposit. Since traditional bearing capacity theories which are presented in most textbooks generally assume homogeneous conditions (i.e., usually either cohesive or cohesionless) this makes the use of most conventional bearing capacity equations inappropriate for many typical design situations. Nonhomogeneous conditions usually occur in natural settings within the limits of influence of the foundation as a result of near surface geologic stratification as a result of variations in geologic deposition over time, but may also occur as a result of recent cut and fill operations.

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