CORRELATION BETWEEN IMMEDIATE

SETTLEMENT OF RIGID FOUNDATION AND

DIMENSION RATIO OF RECTANGULAR

FOOTING ON SAND

by

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ABSTRACT

The immediate settlement of footing on sand is governed by parameters such as contact pressure, dimension of footing and modulus of elasticity of the sand . It occurs immediately on application of the surface loads and is responsible for immediate settlement.

The different ratios of L/B for a rectangular footing but with an equal area of contact are anticipated to give different values of immediate settlement . The sand is burdened with the same contact pressures through different dimension ratio of footing. Immediate settlement will be monitored and the result will show the effect of the different ratios of L/B with settlement for a specific load from the column.

In this study an attempt is made to correlate ratios of footing shape of a rectangular foundation to settlement in sand .The settlement formula given by Terzaghi to calculate the immediate settlement of flexible footing and the formula of Skempton for rigid footings shall be used as the basis and guidelines in the study.

The study found that there is no specific ratio that will give least settlement based on the same pressure through the same area of contact. It seems that the settlement decrease as the L/B ratio increase.

CHAPTER 1

1.0 INTRODUCTION

In the Geotechnical Engineerings, settlement is one of the major problems normally faced by an engineer. A knowledge of the way in which foundation loads are transmitted to the soil supporting a foundation, and the distribution of stresses within the soil are of fundamental importance to the design engineer. Estimation of immediate settlement on granular material must first be estimated and compared by an engineer.

Thus the three key steps in evaluating foundation design are:

1. Selection of the required factor of safety against a shear failure and the permissible settlement.

2. Determination of the bearing capacity and the actual factor of safety under the expected load.

3. Estimation of the settlement and comparison with the permissible settlement.