Chanwit Noihome 2014: A Study of Behavior of Differential Settlement between Shallow Foundation and Piles Foundation. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Associate Professor Suttisak Soralump, Ph.D. 166 pages.

An excessive differential settlement of the buildings causes damage of buildings structures and reduces factor of safety. Especially the area that different in the geological and have to design different type of footing. For this research, shallow foundation and pile foundation are constructed under the same building as a result of differential settlement between shallow foundation and pile foundation can occur in the future.

The purpose of this research was to study behaviors of differential settlement of building. The data used in this research were obtained from building structure, including settlement observation, subsoil data and as-built drawing. The differential settlement analysis was carried out using elastic theory, and the behaviors of concrete pile cap were analyses by the beam on elastic material concept, combined with finite element method to determine shear and moment in the pile cap. The value of spring stiffness is determined from static and dynamic pile load test and the uniaxial compressive test data.

The results of the settlement calculation show that the settlement of shallow and pile foundation are much closed and the structures of building are safety. The maximum moment occur less than the allowable bending moment and no cracking occur in the building which corresponds to the field observation. The results of this study can be used for the analysis and design of building structure that use both shallow and pile foundation under the same building.

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