

# Laboratory tests on thermal improvement of soft clay under elevated temperatures

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## Abstract

This paper focuses on thermal improvement of soft clay under moderately elevated temperatures. Since soft clay can contract when heated, as is well known as thermal consolidation, heating of the ground can help consolidation of soft clay deposits. Although the temperature effects on consolidation of soft clay have been previously studied by element-scale tests, spatial heat transfer and its effect on consolidation are not fully understood. In this study, we conducted element-scale consolidation test under different temperatures up to 65 °C, to evaluate the temperature effect on the consolidation characteristics of clays. Large-scale soil tank test with a cartridge heater installed at the center was also conducted to assess uneven settlement of soft clay associated with radial heating. Experimental results confirmed that thermally induced volume change varies with the type of clay and a consolidation rate can be enhanced by temperature elevation.