

## Experimental Study on Shaft Grouting Bearing Capacity of Small Diameter Bored Piles

**Authors :** Trung Le Thanh

**Abstract :** Bored piles are always the optimal solution for high-rise building foundations. They have many advantages, such as large diameter, large pile length and construction in all different geological conditions. However, due to construction characteristics, the load-bearing capacity of bored piles is not optimal because wall friction is reduced due to poor contact between the pile and the surrounding soil. Therefore, grouting technology along the pile body helps improve the load-bearing capacity of bored piles significantly through increasing the skin resistance of the pile and surrounding soil. The improvement of pile skin resistance depends on the parameters of grouting technology, especially grouting volume, mortar viscosity, mortar strength,... and different geological conditions. Studies show that the technology of grouting piles on sandy soil is more effective than on clay. This article presents an experimental model to determine the load-bearing capacity of bored piles with a diameter of 400 mm and a length of 3 m on sand with different slurry volume in Tan Uyen city, Binh Duong province. On that basis, analyze the correlation between the increase in load-bearing capacity of bored piles without and with shaft grouting pile. Research results show that the wall resistance of shaft grouted piles increases 2-3 times compared to piles without grouting, and the pile's load-bearing capacity increases significantly. The article's research provides scientific value for consulting work on the design of bored piles when grouted along the pile body.

**Keywords :** bored pile, shaft grouting, bearing capacity, pile shaft resistance

**Conference Title :** ICSMGE 2024 : International Conference on Soil Mechanics and Geotechnical Engineering

**Conference Location :** Tokyo, Japan

**Conference Dates :** December 02-03, 2024