

# Cost Effective Foundation System for G+4 Residential Building on Stratified Soil

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**Abstract:** *In this project we designed a cost effective foundation system for stratified soil. Firstly we calculated different loads acting on a G+4 residential building with the help of STAAD.Pro software. Then after getting the loads we designed the stone column for the particular bearing capacity of the soil. Also we designed pile foundation for same soil but different lengths. After designing pile foundation and stone column we calculated the cost required for the construction for both. Comparison of stone column and pile foundation is then shown in the results.*

**Keywords:** Cost, Foundations, Ground Improvement technique, pile foundation, medium rise building

## REFERENCES

- [1]. Monojit Mondal, et al "Cost Effective Foundation System for Medium Rise Residential on Typical Soft Kolkata Soil". Junior Engineer (P. way), Engg. Dept., Malda Division, Eastern Railway, Malda, 732102.
- [2]. Long Hok Soeng et al, "Cost-Effective Foundation for Low-Rise Buildings" ISSN: 2278-0181 Volume 9, Issue 09 September 2020.
- [3]. M. S. Islam, et al "Cost effective foundation on problematic soil of reclaimed areas in Dhaka city", Department of Civil Engineering, Bangladesh University of Engineering and Technology, Dhaka, Bangladesh
- [4]. Brajesh Mishra, "A Study on Ground Improvement Techniques and Its Applications"
- [5]. ISSN: 2347-6720 Volume 5, Issue 01 January 2016.
- [6]. Ankit vadi, Ismail vaghela "Ground improvement technique using stone column" ISSN: 2394-3696 Volume 5, Issue 04 April 2018.
- [7]. Eldho, C.A., et al "Case Study: Ground Improvement Using Stone Columns and PVD" Indian Geotechnical Conference 2010, December 16-18, 2010.
- [8]. Sneha P. Hirkane, et al "Ground Improvement Techniques" ISSN: 2319-9598 Volume 2, Issue 02 January 2014.
- [9]. Mohammad Bilal, Abdullah Talib, "A study on advances in ground improvement techniques" Department of Civil Engineering, IIT Delhi, New Delhi.
- [10]. Nimisha Kachra, et al "Ground Improvement Techniques" eISSN: 2455-5703 Volume, March 2016.
- [11]. Hareesh D. Golakiya, Mittal D. Lad, "Ground improvement by using stone columns"
- [12]. ISSN: 2349-5162 Volume 2, Issue 11 November 2015.