

STRENGTH IMPROVEMENT OF CLAYEY SOIL BY USING FLY ASH AND MARBLE DUST

Name of Student : Amandeep Verma (1452708)

Deptt. : Geo-civil

Guide : K. S. Gill & P. Garg

Mode of Study : F. Time

ABSTRACT

Strength improvement of soil means that to improve the properties of soil by different methods. Some waste materials are used to improve the soil such materials are fly ash, marble dust. Fly ash is the ash produced by burning of pulverized coal in thermal power plants. Marble industries are producing larger amount of marble dust. The rapid growth of marble dust creates a big problem on environment as acts as a pollutant and affect the ecological system. Hence both material are cheap by cost. The object to carry out this study was to evaluate the effect of materials i.e marble dust and fly ash when mixed with clay soil. The physical and chemical properties of soil was improved by addition of such those materials. Whereas some expecting properties are index properties, compaction characteristics and strength properties. The marble dust is added in range of 5–20 % in corporation with fly ash 10-30%. Laboratory studies were performed to identification the Atterberg limits, proctor density, Unconfined compression strength, triaxial test. It was found that addition of 20% fly ash in soil shows maximum strength value increases 114.42% Unconfined compression strength(UCS). Further addition of fly ash has negative effects on these properties. Triaxial test is performed to calculate shear strength parameters of mixed soil i.e soil, fly ash and marble dust. It was found that cohesion character (c') goes on decreasing and angle of internal friction (ϕ) goes on increasing by addition of marble dust in soil and optimized fly ash. Test results shows marble dust and fly ash improves strength characteristics of soil along with those use of materials is economical and also solves the problem of environment.