

## Cementing Efficiency of Low Calcium Fly Ash in Fly Ash Concretes

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**Abstract :** Research on the utilization of fly ash will no longer refer the fly ash as a waste material of thermal power plants. Use of fly ash in concrete making, makes the concrete economical as well as durable. The fly ash is being added to the concrete in three ways namely, as partial replacement to cement, partial replacement to fine aggregates and admixture. Addition of fly ash to the concrete in each one of the form mentioned above, makes the concrete more workable and durable than the conventional concrete. Studies on fly ash as partial replacement to cement gained momentum as such replacement makes the concrete economical. In the present study, an attempt has been made to understand the effects of fly ash on the workability characteristics and strength aspects of fly ash concretes. In India, major number of thermal power plants are producing low calcium fly ash. Hence, in the present investigation, low calcium fly ash has been used. Fly ash in concrete was considered for the partial replacement of cement. The percentage replacement of cement by fly ash varied from 0% to 40% at regular intervals of 10%. Moreover the fine aggregate to coarse aggregate ratio also has been varied as 1:1, 1:2, and 1:3. The workability tests revealed that up to 30% replacement of cement by fly ash in concrete mixes water demand for reduces and beyond 30% replacement of cement by fly ash demanded more water content for constant workability.

**Keywords :** cementing efficiency, compressive strength, low calcium fly ash, workability

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