

Correlation between strength and durability indices of plain and blended cement concretes

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Abstract:

In this study, plain, silica fume and fly ash blended cement concretes prepared with varying water to cementitious materials ratio and cementitious materials content were tested for compressive strength, water permeability, chloride permeability, and coefficient of chloride diffusion after 28 days of water curing. The data so developed were statistically analyzed to develop correlations between compressive strength and the selected durability indices of concrete. Very good correlations were noted between the compressive strength and the selected durability indices, particularly chloride permeability and coefficient of chloride diffusion, irrespective of the mix design parameters. However, these correlations were observed to be dependent on the type of cement.