

عنوان مقاله:

Effects of Fly Ash and Binder Content on Strength, Water Permeability of High Performance Self Compacting Concrete

محل انتشار:

اولین کنفرانس بین المللی و سومین کنفرانس ملی سد و نیروگاههای برق آبی (سال: 1390)

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خلاصه مقاله:

Rheological, mechanical and transport properties of high performance selfcompacting concrete (HPSCC) mixes with different cement contents and fly ash percentages are studied in this research. Different HPSCC mixtures were investigated with cement content of 400, 450 and 500 kg/m³ and fly ash percentages of 5, 10 and 15%. In order to achieve an enhanced durability, the aggregates grading curve was modified and improved based on Power 0.45 grading curve. For better understanding of fly ash effect and comparison purposes, a constant w/b (0.38) was used. The rheological properties were observed through slump flow time and diameter and V-Funnel flow time. Mechanical properties including compressive and splitting tensile strength were determined at 7, 28 and 90 days. Water permeability of the mixtures was investigated using water absorption and capillary absorption tests. The results showed a desirable improvement in rheological properties and the compressive strength improved by about 10% for 15% fly ash at 90 days. A relatively significant improvement was also considered in permeability properties by increasing the fly ash percentage and binder content, especially at higher ages

کلمات کلیدی:

high performance self compacting concrete, fly ash, binder content, water permeability, chloride penetration

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