عنوان مقاله:

Experimental study of durability of concrete with different cement types subject to Freeze-Thaw cycles

محل انتشار:

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خلاصه مقاله:

To achieve a practical and simple model for evaluating parameters on durability of concrete against freeze-thaw cycles, samples based on ASTM C666 were made. Samples were made using Three different water-cement ratios of 0.4, 0.5, and 0.6 and three Air percentages of 1.5%- entrapped air, 4.5%, and 6% entrained air. Cement types used in this study are Portland cement type 1, type 5 and Pozzolan cement. Samples were subjected to three freeze-thaw cycles of 40, 100, and 150 and then compressive strength test. The Change in length and weight of samples were measured and compared with control samples. The best experimental performance was obtained for water-cement ratio of 0.4 and 4.5% of air in samples made of Portland cement type 1. Adding air more than 4.5% of the concrete volume will reduce the durability but still is better than the non-air entrained ones.

کلمات کلیدی:

Durability, Cement type, Water-cement ratio, Freeze-thaw cycles, Entrained air