

# **SALT SCALING RESISTANCE OF HIGH-VOLUME CLASS C FLY ASH CONCRETE**

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## **ABSTRACT**

This research was undertaken to evaluate the salt scaling resistance of high-volume of Class C fly ash concrete. Two series of tests were planned. For the first series of tests (Series A) concrete mixture were proportioned to have cement replacement with one source of Class C fly ash in the range of 0-70% by weight, whereas for the second series (Series B) of tests concrete mixtures were made with several fly ashes for replacing cement in the range of 35 to 55% by weight. This report includes extensive review of the previous investigations and the experimental results for the first series of test only. Air-entrained concrete mixture were designed to have the 28-day compressive strength of 6000 psi (41.4 MPa). For each concrete mixture, compressive strength, air-void characteristic of hardened concrete, and de-icing salt scaling resistance were determined. Salt scaling resistance were evaluated by ASTM C-672. Concrete up to 40% cement replacement with fly ash has no-scaling after 50 cycles of freezing and thawing in presence of deicing chemicals. Slight to moderate scaling occurred for 50% fly ash concrete after 50 cycles of freezing and thawing. Severe scaling was observed for 70% fly ash concrete specimens after 50 cycles per ASTM C-672.