

INTERIM FINAL TECHNICAL REPORT  
September 1, 2002, through August 31, 2003

Project Title: **DURABILITY EVALUATION OF ILLINOIS BOTTOM ASH  
CONCRETE COMPOSITES**

ICCI Project Number: 02-1/3.1D-1  
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ABSTRACT

The Department of Civil Engineering at SIUC recently completed a research project involving utilization of Illinois PCC bottom ash in construction of pre-cast concrete piles. Test results from this research showed that the performance of piles made with Illinois bottom ash was similar to that of piles made with conventional concrete. However, there was a concern about durability of the concrete composites developed during the previous study. Therefore, the objective of this study was to develop additional data related to durability of concrete composites used to construct the piles. A series of fresh and hardened air content tests and a set of rapid freeze thaw tests were performed on the concrete composites. The results of air-void structure tests showed that the concrete composites having Illinois PCC bottom ash lost significant portion of the air that was entrained at the time of mixing. Therefore, it was decided to further investigate this issue. The rapid freeze-thaw tests performed showed that the concrete composites performed satisfactorily. However, performance of the concrete composites was not as good as the performance of conventional concrete. The primary reason for this performance is believed to be the loss of air content which is being investigated further. We received a no-cost extension from ICCI till January 31, 2004 to complete this additional investigation. The final report of the project will be submitted to ICCI in February 2004.