

ABSTRACT

In 1982 the Iowa DOT allowed a successful bidder the option of submitting materials and proportions using fly ash to produce a portland cement concrete (PCC) paving mixture to meet a specified compressive strength. The contractor, Irving F. Jensen, received approval for the use of a concrete mixture utilizing 500 lbs. of portland cement and 88 lbs. of fly ash as a replacement of 88 lbs. of portland cement. The portland cement concrete mixture was utilized on the Muscatine County US 61 relocation bypass paved as project F-61-4(32)--20-70. A Class "C" fly ash obtained from the Chillicothe electric generating plant approximately 100 miles away was used in the project. This use of fly ash in lieu of portland cement resulted in a cost savings of \$64,500 and an energy savings of approximately 16 billion BTU. The compressive strength of this portland cement concrete mixture option was very comparable to concrete mixtures produced without the use of fly ash. The pavement has been performing very well. The substitution of fly ash for 15% of the cement has been allowed as a contractor's option since 1984. Due to the cost savings, it has been used in almost all Iowa PCC paving since that time.