

ABSTRACT

Crack formation has been a problem on some recently constructed bridges in Iowa. Drying shrinkage has been considered a contributing factor in that cracking.

The study was undertaken to evaluate some of those material properties that contribute to the magnitude of drying shrinkage. Cement content, cement composition, fly ash and retarding admixture were the factors studied. Concrete prisms were cast for seven mixes and, after curing, were exposed to 100°F heat at ambient humidity for 280 days.

The following were observed from the testing:

1. Higher  $C_3A$  content cement concrete produced larger shrinkage.
2. Use of fly ash increased shrinkage.
3. Use of retarder increased shrinkage.
4. Lowering the cement content reduced the shrinkage.