

HR-272 Development of a Conductometric Test for Frost Resistance of Concrete

Key Words: Frost resistance, Conductometric test, PCC

ABSTRACT

This report describes the research completed under the research contract entitled "Development of a Conductometric Test for Frost Resistance of Concrete" undertaken for the Iowa Highway Research Board. The objective of the project was to develop a test method which can be reasonably and rapidly performed in the laboratory and in the field to predict, with a high degree of certainty, the behavior of concrete subjected to the action of alternate freezing and thawing. The significance of the results obtained, and recommendations for use and the continued development of conductometric testing are presented in this final report.

In this project the conductometric evaluation of concrete durability was explored with three different test methods. The test methods and procedures for each type of test as well as presentation of the results obtained and their significance are included in the body of the report. The three test methods were:

- 1) Conductometric evaluation of the resistance of concrete to rapid freezing and thawing,
- 2) Conductometric evaluation of the resistance of concrete to natural freezing and thawing, and
- 3) Conductometric evaluation of the pore size distribution of concrete and its correlation to concrete durability.

The report also includes recommendations for the continued development of these test methods.