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Recent Advancement in Concrete Freezing-Thawing (F-T) Durability

JAI Guest Editor
Kejin Wang



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**Recent Advancement in Concrete
Freezing-Thawing (F-T) Durability**

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Foreword

THIS COMPILATION OF THE *JOURNAL OF ASTM INTERNATIONAL (JAI)*, STP1511, on *Special Issue on Recent Advancement in Concrete Freezing-Thawing (F-T) Durability*, contains papers published in JAI highlighting recent advances in concrete F-T durability. This STP is also associated with ASTM Committee C09 on Concrete and Concrete Aggregates.

The JAI Guest Editor is Dr. Kejin Wang, Iowa State University of Science & Technology, Department of Civil, Construction, and Environmental Engineering, Ames, Iowa.

Contents

Overview	vii
Assessment of Air Entrainment in Fresh Cement Paste Using Ultrasonic Nondestructive Testing	
R. M. Kmack, K. E. Kurtis, L. J. Jacobs, and J.-Y. Kim	1
Evaluation of Two Automated Methods for Air-Void Analysis of Hardened Concrete	
A. M. Ramezaniapour and R. D. Hooton	27
The Practical Application of a Flatbed Scanner for Air-Void Characterization of Hardened Concrete	
K. Peterson, L. Sutter, and M. Radlinski	41
Evaluation of the Critical Air-Void System Parameters for Freeze-Thaw Resistant Ternary Concrete Using the Manual Point-Count and the Flatbed Scanner Methods	
M. Radlinski, J. Olek, Q. Zhang, and K. Peterson	64
Assessing the Durability of Engineered Cementitious Composites Under Freezing and Thawing Cycles	
M. Şahmaran, M. Lachemi, and V. C. Li	85
Experimental Study on Freeze-Thaw Damage Mechanism of Lightweight Aggregate Concrete	
J. Mao, K. Ayuta, H. Qi, and Z. Liu	103
Test Methods for Characterizing Air Void Systems in Portland Cement Pervious Concrete	
J. T. Kevern, K. Wang, and V. R. Schaefer	119
Effects of Strength, Permeability, and Air Void Parameters on Freezing-Thawing Resistance of Concrete with and without Air Entrainment	
G. Lomboy and K. Wang	135
Determining the Air-Entraining Admixture Dosage Response for Concrete with a Single Concrete Mixture	
M. T. Ley	155
Freeze-Thaw Performance of Concrete: Reconciling Laboratory-Based Specifications with Field Experience	
D. J. Janssen	170

Overview

In recent years, concrete technology has advanced dramatically. Various new types of concrete, such as self-consolidating concrete, engineered cementitious composites, and pervious concrete, have been developed. Concretes have served in many difficult environments, including cold climates. A number of new techniques have emerged for characterizing and predicting the performance of concrete subjected to freezing-thawing (F-T) cycles. This special issue highlights recent advances in concrete F-T durability.

This special issue contains ten papers. Four focus on the new technologies and test methods for characterizing air voids in fresh cement paste and hardened concrete. Three provide state-of-the art information on F-T durability of special concrete, such as lightweight concrete, engineered cementitious composites, and pervious concrete. One paper emphasizes the effects of void parameters on concrete F-T resistance. One introduces a new test method for determining air entraining agent demand of a concrete mixture. And one paper offers guidance for interpreting F-T test results of field concrete and for reconciling laboratory-based specifications with field experience.

As a guest editor, I sincerely thank all the authors for their contributions and all the reviewers for their constructive comments and suggestions. I am also indebted to the ASTM and JAI staff members for their timely assistance in organizing and preparing this special issue. I earnestly hope that this special issue will facilitate significant improvements in concrete void characterization, F-T durability evaluation, and test specifications. This special issue should serve as a valuable resource for researchers and engineers to make such improvements.

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