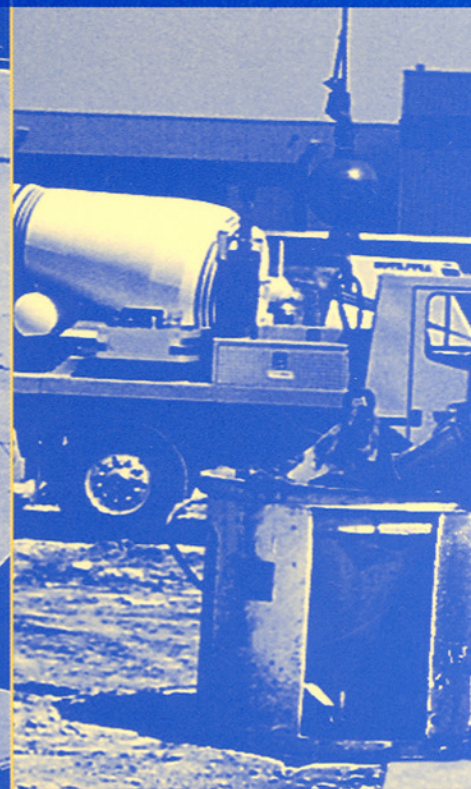


SIGNIFICANCE OF  
TESTS AND PROPERTIES OF

# Concrete

& Concrete-Making Materials



EDITORS:  
Joseph F. Lamond  
James H. Pielert



**INTERNATIONAL**  
Standards Worldwide  
**STP 169D**

# **Significance of Tests and Properties of Concrete and Concrete-Making Materials**

## **STP 169D**

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**Joseph F. Lamond and James H. Pielert, Editors**

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# Foreword

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THIS PUBLICATION is a revision and expansion of *Significance of Tests and Properties of Concrete and Concrete-Making Materials (STP 169C)* published in 1994. That publication in turn replaced editions published in 1956, 1966, and 1978. The present publication includes a number of new materials and test methods that have been developed, or materials that have increased in importance since the 1994 edition. Two most useful additions are the chapters on slag as a cementitious material and self-consolidating concrete.

As in the previous editions, chapters have been authored by individuals selected on the basis of their knowledge of their subject areas, and in most cases because of their participation in the development of pertinent specifications and test methods by ASTM Committee C09 on Concrete and Concrete Aggregates and, in some cases, ASTM Committee C01 on Cement. The authors developed their chapters in conformance with general guidelines only. Each chapter has been reviewed and, where necessary, coordinated with chapters in which overlap of subject matter might occur.

This latest edition has been developed under the direction of the Executive Committee of ASTM Committee C09 by coeditors Joseph F. Lamond, Consulting Engineer, and James H. Pielert, Consultant, both members of Committee C09.



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## JOSEPH LAMOND

Before establishing his own consulting practice in 1989, Joseph Lamond was employed by the U. S. Army Corps of Engineers for 32 years. Mr. Lamond received a BS degree in Civil Engineering from the University of Massachusetts in Dartmouth. He is a registered Professional Engineer in the Commonwealth of Massachusetts.

While with the U. S. Army Corps of Engineers as a Concrete Materials Engineer in the New England and Washington offices, he was involved in the design and construction of Army, Air Force, and Civil Works projects. The projects involved design reports on concrete materials, specifications, and construction evaluation. He managed the Corps' concrete materials criteria, guide specifications, testing, training, and research for structural, mass, roller-compacted, and pavement concrete.

Mr. Lamond was also the Engineering Director for the Pyrament Division of Lone Star Industries. He was project manager for chloride-induced corrosion in bridges for the National Academy of Sciences, Strategic Highway Research Program and consultant on the concrete durability programs.

Mr. Lamond is a fellow of ASTM International and an Honorary member of ASTM Committees C09 on Concrete and Concrete Aggregates and C01 on Cement. He was the recipient with Paul Klieger of the ASTM Charles B. Dudley Award as co-editor of *ASTM STP 169C Significance of Tests and Properties of Concrete and Concrete-Making Materials*. He serves on seven subcommittees and was past chairman of the Subcommittee on Testing Concrete for Strength. He is a fellow of the American Concrete Institute and served on the Board of Direction.

Mr. Lamond continues his interest as an engineering consultant on concrete, concrete materials, and concrete construction and serves as an expert witness in litigation.



## JAMES PIELERT

James Pielert worked in the steel industry as a Research Development Engineer from 1961 to 1971. He joined the National Institute of Standards and Technology (NIST) in 1971, working there until 2000. He managed the AASHTO Materials Reference Laboratory and the Cement and Concrete Reference Laboratory, which are located at NIST, from 1983 to 2000. These laboratories provide programs for evaluating the quality of testing of construction materials in more than 1200 laboratories worldwide. He went to work for the American Association of State Highway and Transportation Officials in 2000 and continued to manage these programs in conjunction with ASTM International until he retired in 2005.

Mr. Pielert received a BS degree in Civil Engineering from the University of Maryland and an MS degree from Lehigh University in Civil Engineering. He is a registered Professional Engineer in Maryland and Pennsylvania.

Mr. Pielert is an Honorary Member of ASTM Committees C09 on Concrete and Concrete Aggregates and C01 on Cement. He has chaired C01 and C09 Subcommittees on International Activities, and a C01 Subcommittee on Coordination of Standards. He is a fellow of the American Concrete Institute and the American Society of Civil Engineers (ASCE). He chaired the ASCE Standards Committee on Condition Assessment and Rehabilitation of Buildings and has over 40 publications in the field of structural design and analysis, and construction materials technology.

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