

DURABILITY OF BUILDING MATERIALS AND COMPONENTS

*Proceedings of the First
International Conference*

Sereda/Litvan, editors

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**AMERICAN SOCIETY FOR
TESTING AND MATERIALS**

DURABILITY OF BUILDING MATERIALS AND COMPONENTS

Proceedings of the First
International Conference

A symposium
presented at
Ottawa, Canada, 21-23 Aug. 1978

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P. J. Sereda and G. G. Litvan
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Foreword

The First International Conference on Building Materials and Components was held in Ottawa, Ontario, Canada, 21-23 August 1978. The symposium was sponsored by Committee E-6 on Performance of Building Constructions and Committee G-3 on Durability of Nonmetallic Materials of the American Society for Testing and Materials, National Research Council of Canada, National Bureau of Standards, and Réunion International des Laboratoires d'Essais et de Recherches sur les Matériaux et les Constructions. P. J. Sereda and G. G. Litvan, National Research Council of Canada, presided as chairmen of the symposium and editors of this publication.

Related ASTM Publications

Compilation of ASTM Standards in Building Codes, 1979, Two Volumes,
\$100.00, 03-001679-10

Design of Buildings for Fire Safety, STP 685 (1979), \$28.00, 04-685000-31

Behavior of Deep Foundations, STP 670 (1979), \$49.50, 04-670000-38

Cement Standards—Evolution and Trends, STP 663 (1979), \$20.00,
04-663000-07

Sealant Technology in Glazing Systems, STP 638 (1977), \$9.50, 04-638000-10

Building Seals and Sealants, STP 606 (1976), \$36.00, 04-606000-10

Window and Wall Testing, STP 552 (1974), \$6.25, 04-552000-10

Testing for Prediction of Material Performance in Structures and Com-
ponents, STP 515 (1972), \$28.50, 04-515000-23

A Note of Appreciation to Reviewers

This publication is made possible by the authors and, also, the unheralded efforts of the reviewers. This body of technical experts whose dedication, sacrifice of time and effort, and collective wisdom in reviewing the papers must be acknowledged. The quality level of ASTM publications is a direct function of their respected opinions. On behalf of ASTM we acknowledge with appreciation their contribution.

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Preface

Durability is today at once a vital but singularly complex feature in modern building. The ability to predict the service life—the durability—of a new building material is being ardently sought after in many parts of the world. Widespread efforts are correspondingly being made to increase the durability of materials already in wide use. All this work will be increasingly necessary as the factors tending to diminish durability steadily become more serious in intensity and distribution. Any estimate of the economic losses resulting from failures in durability lead inevitably to dollar figures so astronomically large that they are usually regarded with incredulity.

This volume of papers is, therefore, a singularly valuable document and a worthy addition to the publications of the American Society for Testing and Materials. It is fitting that the volume should be published by ASTM since much of the work of this Society throughout its more than eighty years has been devoted to the durability of materials and to the development of useful testing methods. Problems of durability affect the use of almost all materials used in engineering so that the relevant interest within ASTM is society-wide. The problems of durability in building, and with all types of building material, are especially serious. It is, therefore, natural that ASTM Committee E06 should have been one of the sponsors of the Conference of which this volume constitutes the Proceedings. The joint sponsors serve to emphasize the international interest in durability (RILEM) and the concerns of active research organizations (National Research Council Canada and National Bureau of Standards).

This is believed to be the first international collection of papers on durability yet to be published, the contributions from twenty countries making it a truly impressive survey of current work and thinking. Earlier meetings with more restrictive coverage have naturally been held, such is the long-standing interest in durability. One may be mentioned, a symposium held in Boston, Mass., 20 years ago, under the auspices of the same ASTM Committee (then known as E6). The few papers then presented were published by the Society as Special Technical Publication No. 236 (1958). Comparison of that slim volume of 67 pages with this book will demonstrate vividly the advances made in the intervening years.

The history of man's concern with durability and his desire to "do something about it" is, in itself, a fascinating story. It was significant that in two of the more general talks at the Ottawa Conference, statements on durability made two thousand years ago by Vitruvius were cited, typical of references in the records of the masterbuilders down through the ages. One hundred years ago, in 1880, Dr. A. Geikie presented a paper to the Royal Society of Edinburgh on "Rock Weathering as Illustrated in Edinburgh Churchyards," on

tombstones! Dr. Geikie was concerned, in his day, with atmospheric influences. What would he have thought of the "smog" which fouls some cities of today? The blight of air pollution provides a background for many of the papers in this volume, as it did also in the formal and informal discussions at the Ottawa meeting. This is, therefore, not only a useful record of a good conference but a continuing challenge to all its users to do what they can in reducing this threat to the environment.

12 March 1980

R. F. Legget

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