

Roofing Research

and Standards Development:

5th Volume

STP 1451

Technical Editor(s):

Walter Rossiter, Jr. and Thomas[®] Wallace



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Roofing Research and Standards Development: 5th Volume

Walter J. Rossiter, Jr. and Thomas J. Wallace, editors

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To make technical information available as quickly as possible, the peer-reviewed papers in this publication were prepared "camera-ready" as submitted by the authors.

The quality of the papers in this publication reflects not only the obvious efforts of the authors and the technical editor(s), but also the work of the peer reviewers. In keeping with long-standing publication practices, ASTM International maintains the anonymity of the peer reviewers. The ASTM International Committee on Publications acknowledges with appreciation their dedication and contribution of time and effort on behalf of ASTM International.

Foreword

The Symposium on Roofing Research and Standards Development was held in Tampa, Florida on December 7, 2003. ASTM International Committee D08 on Roofing and Waterproofing served as sponsor. Symposium chairmen and co-editors of this publication were Thomas J. Wallace, Coast to Coast Consultants, Port Richey, Florida; and Walter J. Rossiter, Jr., National Institute of Standards and Technology, Gaithersburg, Maryland.

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Overview

Sound standards have strong technical bases. This symposium on *Roofing Research and Standards Development* is the fifth in a series dating back to the mid-1980s. It was conducted under the auspices of Subcommittee D08.21 on Research Needs for Roofing and Waterproofing. This symposium and the papers described in the Proceedings illustrate D08's commitment to developing standards that have strong technical bases, which ultimately contributes to improve roofing performance. Proceedings in this series are: *Roofing Research and Standards Development, ASTM STP 959* (1986), edited by R.A. Critchell, *Roofing Research and Standards Development, 2nd Volume, ASTM STP 1088* (1990), *Roofing Research and Standards Development, 3rd Volume, ASTM STP 1224* (1994), *Roofing Research and Standards Development, 4th Volume, ASTM STP 1349* (1998), all edited by T.J. Wallace and W.J. Rossiter, Jr.

When this *Roofing Research and Standards Development* series was initiated in 1986, the roofing industry was in a state of rapid flux. For example, many new membrane products for commercial and industrial roofs—particularly those based on elastomers, thermoplastics, and polymer-modified bitumens—appeared on the market without adequate characterization that they were suitable to withstand the rigors of the roof environment. Consequently, in some cases, these new membrane products disappeared from the market almost as quickly as they arrived. That era is long behind the industry as fewer new products were introduced during the 1990s. That is, the industry settled into a period of stability during the 1990s, which has now extended into the new millennium.

When the industry was in a rapid state of flux, D08 was under extreme pressure to develop materials specifications for the new products. Its members responded admirably and the needed specifications were issued after considerable debate and discussion. With stability settling in, D08 turned its attention to developing and improving companion standards such as test methods for evaluating important performance properties, and practices for inspection, maintenance, and application.

In essence, the stabilization of the industry has provided opportunity for D08 to address long-standing issues, and increase its understanding of factors that vitally affect successful long-term performance. Paramount among these factors are characterization of durability, wind resistance, fire resistance, and impact on building energy consumption. The symposium papers assembled in these current Proceedings directly target these four factors. They represent an important contribution to D08's commitment to expanding the knowledge base that supports successful roof performance. The papers are also exemplary of the types of studies that will be needed continuously to improve roofing performance. Five papers address durability and material characterization, two focus on wind resistance, two apply to energy consumption, and one centers on fire resistance. Consistent with the title of the symposium series, in many cases, the authors have made recommendations for development of new ASTM standards or improvement of those already issued. The editors of these Proceedings hope that the D08 members will review, digest, and critique these recommendations and, as appropriate, initiate task group activities to consider them in the D08 standards development process.

As in the past, these Proceedings are dedicated to the members of ASTM Committee D08 who unselfishly give their time and energy to improve the performance of roof systems. The editors express

their sincere thanks and appreciation to those individuals who participated in the organization and conduct of the symposium. D. M. Bailey, C. G. Cash, R. M. Dupuis, M. F. Franks, M. S. Graham, J. R. Hagan, W. A. Kirn, M. Knowles, L. R. Meyers, R. M. Paroli, G. A. Smith, T. L. Smith, R. J. Wallace, and J. R. Wells were members of the steering committee. At ASTM headquarters, Dorothy Fitzpatrick, Joseph Hugo, and Pat Picariello organized the symposium arrangements. Maria Langiewicz, working with Crystal Kemp, directed the review and publication of the papers. The editors acknowledge with thanks the noteworthy contributions of Ms. Langiewicz for her diligence and thoroughness in keeping us on schedule as these Proceedings were developed. R. J. Goode was the ASTM Committee on Publications (COP) representative to the symposium steering committee. Above all, special thanks are given to the authors and reviewers of the ten papers without whose outstanding efforts in writing and reviewing, respectively, and commitment to remaining on schedule, the symposium and Proceedings would not have been possible.

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