



Roofing Research and Standards Development

6th Volume

Walter J. Rossiter
Thomas J. Wallace
Editors

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Each paper published in this volume was evaluated by two peer reviewers and at least one editor. The authors addressed all of the reviewers' comments to the satisfaction of both the technical editor(s) and the ASTM International Committee on Publications.

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.

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Foreword

Committee D08 has a firm commitment to providing a strong technical basis for its standards. From a practical point of view, the availability of data can help accelerate the standards development process as decisions can be made on fact and not opinion. This D08 symposium on Roofing Research and Standards Development is the sixth in a series that dates back to the mid-1980s. The symposium provides a forum contributing to the fundamental understanding of acceptable roof performance. The primary emphasis for the symposium is on current research and development work.

Papers reflect a wide variety of technologies and concerns in the following areas:

- Wind resistance of roofing
- Rheological properties of asphalts and their specifying using dynamic shear rheometry (DSR)
- Heating and seaming issues with thermoplastic membrane materials
- Field performance of artificial slates and shingles
- Corrective actions for ending basement leaks
- Issues with specifications for polyisocyanurate (ISO) foam insulation
- Practical lessons learned from studies with green roofs and copper roofing

The audience is roofing professionals, including contractors, architects, engineers, consultants, building owners, researchers, technologists, technicians, sales and marketing personnel, product development specialists, and insurers.

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Overview

A driving force behind D08's Symposium Series is the tenet, "Sound standards have strong technical bases." This symposium on *Roofing Research and Standards Development* is the sixth in the series dating back to the mid-1980s. 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 improved 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), *Roofing Research and Standards Development, 5th Volume, ASTM STP 1451* (2003), all edited by T.J. Wallace and W.J. Rossiter, Jr.

ASTM International Technical Committee D08 on Roofing and Waterproofing is the focal point in North America for the development of standards for low-sloped and steep roofing, and also waterproofing. The extent of its activities stretches across the typical categories of ASTM standards including specifications, test methods, practices, and guides. Fortunately, D08 members bring a broad variety of necessary expertise and backgrounds to cover these activities. The importance of having such broad expertise today cannot be underestimated, since issues addressed in D08's standards deliberations range from the practical to the fundamental. Moreover, the materials and components that comprise roofing and waterproofing systems cover a myriad of synthetic and natural materials used either alone or in combination with each other. The bottom line is that, when all D08 standards are considered collectively, their development represents an enormous effort; in contrast, taken individually, it is a tedious one. The symposia in the D08 series are just one small, yet vitally important, task supporting these standards development efforts.

Consistent with the broad range of D08 standards activities, the symposium papers assembled in these current Proceedings range from the practical to the fundamental and include:

- Wind resistance of roofing,
- Rheological properties of asphalts and their specifying using dynamic shear rheometry (DSR),
- Heating and seaming issues with thermoplastic membrane materials,
- Field performance of artificial slates and shingles,
- Corrective actions for ending basement leaks,
- Issues with specifications for polyisocyanurate (ISO) foam insulation, and
- Practical lessons learned from studies with green roofs and copper roofing.

These papers represent a significant contribution to D08's commitment to expanding the knowledge base that supports successful roof performance. From a practical point of view, the availability of data can help accelerate the standards development process as decisions can be made on fact and not opinion. In announcing this symposium, authors were informed that its primary emphasis would be on current research and development work. 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 give unselfishly of their time and energy to improve the performance of roof systems. The editors express their sincere thanks and appreciation to those many individuals who participated in the organization and conduct of the symposium. Dave Bailey, Carl Cash, Rene Dupuis, Mark Graham, Tom Hutchinson, Bill Kirm, Mason Knowles, Larry Meyers, Ted Michelsen, Mike Franks, Ralph Paroli, George Smith, Tom Smith, and Dick Wallace were members of the steering committee. At ASTM headquarters, Dorothy Fitzpatrick, Joseph Hugo, Maria Langiewicz, and Hannah Sparks provided for the symposium arrangements. Leslie Struble was the Journal of ASTM International (JAI) editor responsible for the symposium papers. Linda Boniello, at the JAI Editorial Office, American Institute of Physics, directed the review and finalization of the papers. Ms. Boniello's dedicated commitment to the review process and unwavering patience with the editors' seemingly endless requests are sincerely acknowledged with thanks. Above all, special thanks are given to the authors and reviewers of the papers without whose outstanding efforts in writing and reviewing, respectively, the symposium and Proceedings would not have been possible.

Finally, we note with sadness the loss of Steering Committee member Carl Cash in February 2007. Carl was, safe to say, D08's leading advocate for the Symposium series, who often pushed for their being held at a two-year frequency. Illustrative of his commitment to the symposia, he published in five of the six symposia in the series including the present one. The co-chairs were privileged to have had opportunity to discuss the development of this last paper with him. Although seriously ill, Carl cheerfully relayed that writing the paper gave him motivation and ambition. Such an anecdote should not be surprising to those who knew Carl, for he was a firm believer in fostering knowledge through writing. D08 members and the symposium series have lost a great friend; Carl will be missed.

Thomas J. Wallace
Coast to Coast Consultants
Port Richey, FL 34668
Symposium Co-chair

Walter J. Rossiter, Jr.
Guest Researcher
National Institute of Standards and Technology
Gaithersburg, MD 20899-8615
Symposium Co-chair



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