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Roofing Research and Standards Development: 8th Volume

STP 1590

Editors:

Walter J. Rossiter, Jr.

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Foreword

THIS COMPILATION OF *Selected Technical Papers, STP1590, Roofing Research and Standards Development: 8th Volume*, contains peer-reviewed papers presented at a symposium held December 6, 2015, in Tampa, FL, USA. The symposium was sponsored by ASTM International Committee D08 on Roofing and Waterproofing and Subcommittee D08.20 Roofing Membrane Systems.

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Overview

The Symposium Series on Roofing Research and Standards Development was initiated almost 30 years ago. In 1986, ASTM Technical Committee D08 on Roofing and Waterproofing hosted a technical symposium that occurred immediately following its fall task group and subcommittee meetings. That symposium, like the one described in these Proceedings, was entitled *Roofing Research and Standards Development*. The 1986 participants considered the first symposium to be quite informative and successful. Acknowledging the success, the D08 leadership at that time recommended that plans be made for a follow-up symposium on the same subject. A second symposium took place in 1990, leading to the birth of the D08-sponsored symposium series that bears the same general title and that survives to this day. These symposia have occurred about every four years.

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 eighth in the 3-decade old series. 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 STP959 (1986), *Roofing Research and Standards Development, 2nd Volume*, ASTM STP1088 (1990), *Roofing Research and Standards Development, 3rd Volume*, ASTM STP1224 (1994), *Roofing Research and Standards Development, 4th Volume*, ASTM STP1349 (1998), *Roofing Research and Standards Development, 5th Volume*, ASTM STP1451 (2003), *Roofing Research and Standards Development, 6th Volume*, ASTM STP1504 (2007), and *Roofing Research and Standards Development, 7th Volume* STP1538 (2011). Volume 1 was edited by R. A. Critchell. Volumes 2 through 6 were edited by T. J. Wallace and W. J. Rossiter, Jr. Volume 7 was edited by 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, and similarly within the systems there are different installation and attachment methods. 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:

- Hygrothermal conditions in attic spaces of wooden houses with eaves ventilation
- A test method for a very severe hail rating for low-slope roofing assemblies
- Puncture resistance and accelerated aging of TPO membranes
- Air leakage properties of seam-fastened roof membrane assemblies
- Hygrothermal analysis of pitched-roof underlayment assemblies
- Long-term reflective performance of roof surfaces
- Service-life assessment of 55% Al-Zn alloy-coated steel standing seam roof systems
- Performance of low-sloped roof structures with varying surface types and ballast layers
- Thermal performance evaluation of roofing details
- Shear resistance of paving and waterproofing systems

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 standards 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. As co-chairs of this symposium, we 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 roofing and waterproofing systems. We express our sincere thanks and appreciation to those many individuals who participated in the organization and conduct of the symposium:

- *D08 committee members*: Steve Condren, Rene Dupuis, Mike Franks, Mark Graham, Tom Hutchinson, Jennifer Keegan, Bill Kirn, Mason Knowles, Larry Meyers, Ted Michelsen, Ralph Paroli, George Smith, Tom Smith, Jim Strong, and Dick Wallace. These D08 members comprised the steering committee. One of their primary responsibilities was the objective evaluation of the abstracts received in response to the call-for-papers issued in developing the symposium.
- *ASTM headquarters staff*: Alyssa Conaway, Kelly Dennison, Kathy Dernoga, Joe Hugo, Mary Mikolajewski, Jennifer Rodgers, and Hannah Sparks. These industrious, professional ASTM staff provided for the symposium arrangements and assisted with the development of the Proceedings. Their assistance and efforts are sincerely appreciated.
- *ASTM's editorial office, J&J Editorial*: Sara Welliver and Heather Blasco. They were responsible for the symposium papers, directing the reviews and editing in preparation for publication.
- *The authors and reviewers*: 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.

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