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Durability of Building and Construction Sealants and Adhesives 5th Volume

STP 1583

Editors

Lawrence D. Carbary

Andreas T. Wolf



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Foreword

This compilation of *Selected Technical Papers*, STP1583, on *Durability of Building and Construction Sealants and Adhesives: 5th Volume*, contains 17 peer-reviewed papers presented at a symposium held June 25–26, 2014 in Toronto, Ontario, Canada and two papers presented at ICBEST 2014 in Aachen, Germany. The symposium was sponsored by ASTM International Committee C24 on Building Seals and Sealants and Subcommittee C24.87 on International Standards.

The Symposium Chairpersons and STP Editors are Lawrence D. Carbary, Dow Corning Corporation, Midland, MI and Andreas T. Wolf, Dow Corning GmbH, Wiesbaden, Germany.

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Overview

Thank you for picking up this publication and absorbing the valuable information contained within. The authors have a great appreciation for your time and talent that bring you here. We have some key messages to share with you now that you are here.

The papers within this volume, ASTM STP 1583, were presented on June 25 and 26, 2014 at the Sheraton Hotel in Toronto Canada after the regular ASTM C24 meeting. During the ASTM C24 meeting a member made a negative comment during a session “Who Cares about Durability?” It was this comment that really set the theme for the Symposium.

ASTM C24 has global influence on standards for building sealants used in commercial and multi use buildings. ASTM C24 committee holds the US Technical Action Group (TAG) to ISO TC 59/SC 8 Building sealant of which both editors are active participants within the organization. Developing and developed countries look to the building sealant standards written by the ASTM and ISO groups to accept as their own standards or make modifications from them.

The cover of this book shows a high rise high performance building set in Philadelphia Pennsylvania USA, near the headquarters of ASTM, currently named the Comcast Center. This building was chosen for the cover so that tangible visible reasons could be communicated as to who exactly does care about durability when discussed in the scope of building sealants.

The owner of a structure such as the Comcast Center creates a relationship with the architectural community to design a functional aesthetically pleasing long lasting structure built to performance standards. High performance building sealants are used as part of the exterior façade. Exterior facades have performance specifications that are outlined in the documents part of ASTM E06, ASTM E33.03 and ASTM E05 just to name a few. The building sealants used on the exterior façade are put in place to have performance related to the air infiltration, water infiltration, thermal performance, sound performance, seismic performance, impact resistance and structural performance of the wall. The professional construction community does not expect to painfully reinstall building sealants well before their service life is ended.

Within ASTM C24 reside standards on Insulating Glass Sealants, Structural Glazing Sealants, weatherproofing sealants, impact resistant, horizontal sealants, interior sealants and acoustic sealants. The volume of construction sealants compared to the volume of common construction materials on a major project is extremely small, however, the building does not perform properly without sealants. Due to

the minor volume of sealants on a project, the commoner may not realize their importance in the performance of the building. Yet there is no office worker that can work in an office environment when the windows and walls leak air and water during inclement weather. The thermal efficiency of insulation is nearly negated when it is wet. Wet insulation causes increased energy usage and premature degradation of the structural components of the façade. Unwanted sound penetrates the façade and interior walls when gaps form. Glazing panels dislodge when structural glazing sealants lose adhesion resulting in increased energy usage and potential safety issues. Facades of high rise buildings are measured in the 10's of thousands of square meters or 100's of thousands of square feet. The effect of building sealants having poor durability will bring together and focus a multitude of building professionals who do indeed care about durability.

This book is the fifth volume concentrating on building sealant durability on an international platform. It is with great honor that the editors are able to produce such a valuable document for the building industry. The collaboration and dedication of the members of C24 are second to none on this planet for writing and maintaining standards so that the owners and architects responsible for the worlds' iconic structures can count on the liquid applied sealant materials that make their buildings safe and comfortable.

The façade consultants, engineers, architects, and sealant producers who are involved in the activity of writing and maintaining standards for high performance building sealants are indeed concerned about durability. The commoners who are uneducated and uncaring about durability of building sealants typically focus on the act of application and initial cost/price. Yet the one most concerned about the durability of building sealants is the building owner because the cost and aggravation of replacing the seals on a new occupied building puts the entire profession in a poor light.

The editors made a conscious decision that papers would be due at the time of the symposium and the peer review process would begin at that time. Other symposiums want papers many months in advance so that the book is published at the symposium. We chose to have the latest developments and research available to be presented and then published. Again thank you for picking up this book. We trust that you will find it a fascinating state of the art research.

Lawrence D. Carbary
Dr. Andreas T. Wolf
STP Editors

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