Building Walls Subject to Water Intrusion and Accumulation:
Lessons from the Past and Recommendations for the Future

Editors:
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Foreword

This compilation of Selected Technical Papers, STP1549, Building Walls Subject to Water Intrusion and Accumulation: Lessons from the Past and Recommendations for the Future, contains peer-reviewed papers that were presented at a symposium held April 14-15, 2013 in Indianapolis, IN. The symposium was sponsored by ASTM International Committee E06 on Performance of Buildings and Subcommittee E06.55 on Performance of Building Enclosures.

The Symposium Co-Chairpersons and STP Co-Editors are Jeffrey Erdly, Masonry Preservation Services, Bloomsburg, PA, USA and Paul Johnson, SmithGroupJJR, Inc., Detroit, MI, USA.
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Overview

Starting in 1990, ASTM Sub-Committee E06.55 published its first Special Technical Publication (STP) relating to the exterior building envelope, specifically pertaining to water leakage in exterior building walls, "Water in Exterior Building Walls: Problems and Solutions, ASTM STP 1107, Thomas A. Schwartz, Editor." Since this initial effort, more than one hundred and thirty-five (135) excellent technical papers have been published and distributed through no less than seven (7) Symposia and STP’s by this group. This coordinated effort to improve design and construction of building envelopes, particularly with regard to their resistance to water related problems, continues in this STP.

The topics addressed within this STP range from, “Stone Cladding Joint Treatment Conundrums Sealant or Mortar” to “Using Hygrothermal Simulation to Assess Risk of Water Accumulation from Wall Assembly Defects.” The diversity of these papers, especially the case studies, evidence that the design and construct industry continues to fail to consistently deliver building envelopes that effectively resist the intrusion and accumulation of moisture. Fortunately, these papers also point out the amount of information and knowledge available to design and construct better buildings, and also how to analyze and determine what the causes of failures are.

The following anonymous quote, “Architecture is of all the arts the one nearest to a science, for every architectural design is at its inception dominated by scientific considerations,” has never been more relevant to the design, construction, and maintenance of buildings. We as owners, architects, engineers, builders, and craftsmen have an obligation to, and must, implement standards to meet the challenges of designing, constructing, and maintaining buildings that efficiently shelter our society. The consensus process at the core of ASTM remains, in the editors’ joint opinion, one of the best ways to develop and improve the dissemination of information required to properly design and construct our built environment.

There is a vast amount of information available, and in effect, we jointly know how to design and construct buildings properly today. The real problem is getting professionals in the industry to understand the availability of this information and to access, understand, and use this knowledge base properly.

The papers contained within this STP represent another step in the dissemination of current, state of the art information, and we hope that it will assist design and construct professionals in accomplishing better performing and longer lasting buildings, in the interest of making the most of the resources that we have.
The Editors of this STP are confident that there will be many more Symposia and STPs to come from this group as they reach into the future and continue to support the goal of better building envelope design and construction.

This STP is organized in the same order as the April, 2013 Symposium. Although not included in this STP, the attendees also benefited from a 3-hour pre-symposium workshop on “Using ASTM Standards to Identify and Mitigate Leakage.” The tutorial session included: 1) An introduction and summary comments by P. G. Johnson, FAIA, Architect; 2) Using ASTM Standard 2128-01a, “Standard Guide for Evaluating Water Leakage of Building Walls” by Dr. R. J. Kudder, Engineer; 3) “Flashing and its Importance in all Buildings” by J. L. Erdly, Contractor; and 4) “Building Leakage from the Owner’s Perspective” by J. S. Youngerman, Esquire/Attorney.

This effort, as in every past Symposium and STP, required a team warranting recognition for countless hours spent without recognition as unnamed, blind peer reviewers of each paper. ASTM efforts by Kathy Dernoga, Susan Reilly, Heather Blasco, Hannah Sparks, and Mary Mikolajewski were also invaluable. Finally, special recognition goes to MPS Office Manager, Laurie Phelps Leach, who assisted the editors in the countless e-mail correspondences and document control required to publish this effort.

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