Symposium on Condensation in Exterior Building Wall Systems

Sponsored by ASTM Committees E06 Performance of Buildings and E06.55 on Exterior Building Wall Systems

October 10-11, 2010
Grand Hyatt San Antonio
San Antonio, TX

ABOUT THE SYMPOSIUM
Control of condensing water in the building envelope has been an ever-increasing concern, as thermal insulation systems evolve, as interior air quality (IAQ) demands grow, and as concern for occupants’ health increase in light of the potential for mold and mildew within buildings. To address these concerns, ASTM has always been a leader in the study of condensation control and in the development of test methods to determine performance of buildings to help control condensation.

Condensation control systems today include insulating materials and air control materials that were unavailable just a few years ago. Design of condensation control today has been greatly aided by computer simulation modeling. Nonetheless, condensation problems still occur. Lessons to be learned from these missteps can guide future material designs and building systems to continue to improve their ability to control condensation.

The symposium continues the traditions of Committee E06 study and debate on this topic.

Tutorial Session
A Tutorial Session on Condensation, scheduled from 9:00am to 12:00p before the Symposium begins at 1:00pm, consists of two tutorial sessions intended to provide basic information about condensation in building walls. It is recommended, but not required, that symposium registrants attend the Tutorial. The first session will describe the gas laws which govern the behavior of water vapor, with an emphasis on applying what is commonly understood about gases to the understanding of vapor transmission. It will attempt to demystify the physics of vapor transmission, leading to an intuitive understanding of condensation. The second session will examine the six common dynamics that cause condensation in buildings: air transfer, diffusion, convection, thermal bridging, basements and fenestration. Both sessions will enhance attendees understanding of building science and successful building enclosure assembly design.

SUNDAY, OCTOBER 10, 2010

TUTORIAL SESSION (See Description Above)

9:00AM
Tutorial Session on How, Why, and Where of Condensation
Robert Kudder, Symposium Co-Chair, Raths, Raths & Johnson, Inc., Willowbrook, Illinois, USA; Wagdy Anis, Wiss, Janney, Elstner Associates, Inc., Cambridge, Massachusetts, USA

12:00PM LUNCH (On your own)
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Symposium Co-Chairs: Bruce S. Kaskel
Wiss, Janney, Elstner Associates, Inc.
Chicago, Illinois, USA

Robert J. Kudder
Raths, Raths & Johnson, Inc.
Willowbrook, Illinois, USA

1:00PM
Opening Remarks
Bruce Kaskel, Symposium Co-Chair, Wiss, Janney, Elstner Associates, Inc., Chicago, Illinois, USA

1:20PM
Keynote Speaker: Insulation Draws Water
William Rose, University of Illinois at Urbana-Champaign, Champaign, Illinois, USA

2:00PM
Laboratory Tests of Window-Wall Interface Details to Evaluate the Risk of Condensation on Windows
Wahid Maref, National Research Council Canada, Ottawa, Ontario, Canada; Nathan Van Den Bossche, Ghent University, Ghent, Belgium; Marianne Armstrong, and Michael Lacasse, and Hakim Elmahdy, and Rock Glazer, National Research Council Canada, Ottowa, Ontario, Canada

2:30PM
Drying Characteristics of Sprayed-Applied Cellulose Fiber Insulation
Marcin Pazera, Simpson Gumpertz & Heger Inc., Rockville, Maryland, USA; Mikael Salonvaara, Huber Engineered Woods, LLC, Commerce, Georgia, USA

3:00PM BREAK

3:15PM
Moisture Damage in Vented Air Space of Exterior Walls of Wooden Houses
Tetsuya Umeno, Sekisuihouse Co., Ltd., Kyoto, Kyoto, Japan; Schuichi Hokoi, Kyoto University, Kyoto, Kyoto, Japan
3:45PM
**Moisture Distribution and Condensation Potential in Wood Frame Walls in a Hot-Humid Climate**
Theresa Weston, DuPont Building Innovations, Richmond, Virginia, USA; Liza Minnich, DuPont Building Innovations, Richmond, Virginia, USA

4:15PM
**ASHRAE Standard 160 - Criteria for Moisture Control Design Analysis in Buildings**
Anton TenWolde, Retired, USDA Forest Products Laboratory, Madison, Wisconsin, USA

4:45PM
**Condensation Problems in Precast Concrete Cladding Systems**
Todd Gorrell, Klein and Hoffman, Inc., Chicago, Illinois, USA

5:15PM
**Experimental Study of the Drying and Wetting of a Sheathing Board in the Conventional and Rain-Screen Wall Systems**
Fitsum Tariku, British Columbia Institute of Technology, Burnaby, British Columbia, Canada; Hua Ge, British Columbia Institute of Technology, Burnaby, British Columbia, Canada

5:45PM
SYMPOSIUM ADJOURNS FOR THE DAY

RECEPTION (CASH BAR)

**MONDAY, OCTOBER 11, 2010**

8:00AM
**Second Day Opening Remarks**
Bruce Kaskel, Symposium Co-Chair, Wiss, Janney, Elstner Associates, Inc., Chicago, Illinois, USA

8:10AM
**Interior Metal Components and the Thermal Performance of Window Frames**

8:40AM
**Controlling Condensation through the Use of Active and Passive Glazing Systems**
Andrew Dunlap, SmithGroup, Inc., Detroit, Michigan, USA; Paul Johnson, and Curt Songer, SmithGroup, Inc., Detroit, Michigan, USA

9:10AM
**Case Study of Mechanical Control of Condensation in Exterior Walls**
Linda McGowan, Building Consultants & Engineers, Inc., Littleton, Colorado, USA; Christopher Morgan, and Loren Flick, Building Consultants & Engineers, Inc., Littleton, Colorado, USA

9:40AM
BREAK
10:00AM
**Controlling Condensation in High Humidity Buildings: Design Guidelines and Lessons Learned**

10:30AM
**Fenestration Condensation Resistance: Computer Simulation and In-Situ Performance**
Elizabeth Ordner, Wiss, Janney, Elstner Associates Inc., Chicago, Illinois, USA

11:00AM
**Improving the Condensation Resistance of Fenestration by Considering Total Building Enclosure and Mechanical System Interaction**
Paul Totten, Simpson, Gumpertz & Heger Inc., Rockville, Maryland, USA; Peter Nelson, Simpson, Gumpertz & Heger Inc., Arlington, Massachusetts, USA

11:30AM
**Sill Pan Condensation: A Link to Window Sill Decay**
George Stamatiades, Academic Magnet High School, Charleston, South Carolina, USA

12:00PM
**Closing Remarks**
Robert Kudder, Symposium Co-Chair

12:10PM **SYMPOSIUM ADJOURNS**

9/24/2010