

Session II-B: Materials – Barriers

Monday, December 6, 2004

1:30 p.m. to 3:00 p.m.

Grand Ballroom – Palm

Session Chair:

Laverne Dalglish

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1:30 p.m. to 1:40 p.m.

Introduction

Laverne Dalglish

1:40 p.m. to 2:00 p.m.

“Review of Air Barrier Issues”

Mark Bomberg

2:00 p.m. to 2:20 p.m.

“The Function and Performance of Weather-Resistive Barriers during Building Construction”

Theresa Weston

2:20 p.m. to 2:40 p.m.

“Evaluation of Water-Resistive Barrier Performance Using Simple Ponding and Vapor Diffusion Tests”

Mark Williams

Review of Air Barrier Issues

Mark Bomberg – *Syracuse University*

Don Onysko – *DMO Associates*

Joseph Lstiburek – *Building Science Corporation*

This review of the science of building enclosures follows the developments in air control. Initially, building papers were thought to be sufficiently suitable. Now we recognize that the performance of the air barrier must be considered in light of its performance as a system. Assuming that air barriers are employed mainly for the sake of energy conservation is a mistake. Air transport control has been recognized as critical to the proper functioning of buildings and building enclosures. Airflow is related to all facets of environmental control because it affects the transport of heat and moisture and affects the indoor environment as well as the durability of the building enclosure. While the need for airtightness is now well recognized, achieving it in practice is a challenge.

The Function and Performance of Weather-Resistive Barriers during Building Construction

Theresa A. Weston and Xuaco Pascual – *DuPont Building Innovations*

Weather-resistive barriers (WRB) are being increasingly recommended by practitioners and required by codes because of their role in reducing moisture problems in buildings. Specifications for these products rightfully focus on their performance over the service life of the building. These products, however, play another very important role, which is to protect moisture-sensitive building components while a building is under construction. Construction built-in moisture has been noted to be a significant factor in the performance of buildings, especially during the first two to three years of service life. This paper combines laboratory testing, field observations, and hygrothermal modeling to understand the effect of WRB properties (water resistance, and water vapor permeance) on the moisture loading of building components during construction.

Evaluation of Water-Resistive Barrier Performance Using Simple Ponding and Vapor Diffusion Tests

Mark F. Williams – *Williams Building Diagnostics, Inc.*

This paper describes a study comparing the water-resistive behavior of two commonly available housewrap products and No. 15 building felt in which the WRB materials were exposed to water (with and without surfactants) and three typical construction scenarios: no contact with OSB sheathing, contact with OSB sheathing, and contact with OSB sheathing combined with a staple fastener.