More information about research papers

by **Mark S. Graham**

At the North American Conference on Roofing Technology, held in Toronto, Ontario, Canada, Sept. 16-17, 14 research papers were presented. Reviews of seven presented papers were given in "Synopses of technical papers," October issue, page 72. Following are reviews of the remaining seven research papers.



Certification

In the paper "Contractor Performance and Certification Programs: Do They Result in Better Roofs?" roofing contractor certification programs' merits and shortcomings are discussed. The authors conclude that many certification programs, including state licensing and ISO 9000 certification programs, do not necessarily result in better roof systems. However, the authors are confident that certain quality-management-based performance programs do result in better roof systems. The paper includes a detailed overview and example of a specific program the authors believe is successful.

Underlayments

"The Uses and Performance Requirements of Steep-Slope Roof Underlays in North America and the United Kingdom" discusses steep-slope underlayment usage and performance requirements for various steep-slope roof system types, materials and climates. The research concludes that new underlayment materials have improved the performances of some roof systems. However, the advantages of some materials appear to be exaggerated. Also, there are some performance properties inherent in traditional materials that may have been overlooked during the new underlayment product development.

Cold adhesives

"Application Techniques and In-Place Field Performance of Cold Adhesive Applied Modified Bitumen Roof Membranes" provides the history of bituminous cold adhesives and their different application methods. Based on his findings, the author concludes that roofing workers' jobs can be cleaner, safer and more efficient, and roofing contractors can change the way they conduct business when using cold adhesives.

Life-cycle costs

"Applying Life Cycle Cost Analysis to Roofing Decisions" assesses the critical elements of a credible life-cycle cost analysis and thoroughly discusses financial considerations. The author indicates that the fundamental weakness of such analysis continues to be the lack of adequate data to provide accurate service life predictions.

TPO membranes

"Effects of Welding Parameters on Seam Strength of Thermoplastic Polyolefin (TPO) Roofing Membranes" discusses TPO roof membrane seam-welding parameters and their effects on seam strength. The research shows that ease of seam welding depends on a membrane's fusion temperature and welding window, which vary greatly among TPO products. Seam strengths for the tested samples range from 14 pounds force per inch (lbf/in) to 51 lbf/in (2.5 kN/m to 9 kN/m) and vary among membrane types and seam failure modes.

Polyisocyanurate insulation

"Transition to Third-Generation Polyisocyanurate Boards: A Systematic Approach" provides a look at the transition in blowing agents for polyisocyanurate foam insulation from CFC-11 to HCFC-141b and discusses the change to a third generation of blowing agents. The author concludes that initial evaluations of HFC-245fa and pentane blowing agents are encouraging. The paper reports that the two most promising avenues are pentane and, possibly, HFC-245fa combined with pentane.

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The author discusses new analytical methods that can predict polyisocyanurate foam insulation's field performance. These methods include "Dim Vac," uncured freezer and perpendicular compressive-strength tests for dimensional stability and a rolling-load test for resistance to facer-sheet delamination. These test methods appear to be significant steps in ensuring high-quality polyisocyanurate foam insulation boards.

Vapor retarders

In "Review of Existing Criteria and Proposed Calculations for Determining the Need for Vapor Retarders," three methods for determining the need for vapor retarders in low-slope roof systems were discussed and a new method was offered. The new method involves several factors, including roof covering color, insulation type and thickness, and deck permeance.

Closing thoughts

The conference's objective was to provide practical applications, approaches and solutions to current roofing issues. The conference's success will be measured by how roofing professionals implement the information in their businesses.

Roofing professionals can obtain conference proceedings, which contain all presented papers, from NRCA's Marketing Services Department by calling (847) 299-9070. PR

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