Roof Investigations: RICOWI & SPF Best Practices Guide

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ANTITRUST POLICY STATEMENT FOR SPRAY POLYURETHANE FOAM ALLIANCE MEETINGS

• It is and shall remain the policy of the Spray Polyurethane Foam Alliance ("SPFA"), and it is the continuing responsibility of every SPFA member company, SPFA meeting or event participant, as well as SPFA staff and leadership to comply in all respects with federal and state antitrust laws. No activity or discussion at any SPFA meeting or other function may be engaged in for the purpose of bringing about any understanding or agreement among members to (1) raise, lower or stabilize prices; (2) regulate production; (3) allocate markets; (4) encourage boycotts; (5) foster unfair or deceptive trade practices; (6) assist in monopolization; or (7) in any way violate or give the appearance of violating federal or state antitrust laws.

• Any concerns or questions regarding the meaning or applicability of this policy, as well as any concerns regarding activities or discussions at SPFA meetings should be promptly brought to the attention of SPFA’s Executive Director and/or its legal counsel.
Background: RICOWI

- Roofing Industry Committee on Weather Issues
- Composed of trade associations with interests in roofing
- SPFA: A member since 1990
- Other members: CSSB, MBMA, RCI, ARMA, TRI, ISANTA, MCA, IBHS, NRC, SPRI
RICOWI Mission

- Encourage and coordinate research to provide a more knowledgeable information base of roof issues including wind, hail, energy efficiency and durability effects;
- Accelerate the establishment of new or improved industry consensus standard practices for weather design and testing when they are recognized as needed;
- Improve the understanding of roof weather concepts and issues within the building community in general.
RICOWI WIP and HIP

• WIP: Wind Investigation Program
  – SPFA has fielded investigation teams following several hurricane events
    • Charlie
    • Ivan
    • Katrina
    • Ike
RICOWI WIP and HIP (2)

- HIP: Hail Investigation Program
  - SPFA has fielded investigation teams following two hurricane events
    - Oklahoma City 2004
    - Dallas-Forth Worth 2011
fractures and which resulted in immediate leaks. On roofs with maximum hail sizes in the range of 1.5 to 2.0 inches in diameter, the extent of damage varied from no damage observed to significant damage. Fracturing or fracturing of the membrane often occurred in this size range when the underlying substrate was a compressible substrate, such as polyisocyanurate board insulations or wood fiberboard.

There were two levels of damage identified on the membranes from hail impact: loss of granule surfacing or fracturing / bruising. Granule loss was not found to cause water infiltration. The bruising that was found was related to the fracturing of the membrane and could allow water infiltration. Destructive analysis of two single application modified bitumen roofs confirmed that impact areas that had some visible granule loss and also felt “bruised,” or soft under finger pressure, had been fractured on the underside of the membrane, although the fractures were not visible on the surface.

A.3. SPRAYED POLYURETHANE FOAM (SPF)

Five roofs were inspected with SPF roofing, with hail caused damage found on three roofs. All the roofing systems involved polyurethane foam with an elastomeric coating. It appeared that all of the roofs had been applied over built-up roofing, and four of the roofs were considered in poor condition. Maximum hailstone sizes impacting the roofs ranged from 0.5 to 1.75 inches in diameter. Three roofs had hail-caused indentations with fractures in the coating, and these roofs had been struck with hailstone sizes of 1.0 inch or larger. The fractures were either concentric circular or radiating fractures, with fractures as small as 0.5 inch diameter. The foam was a bright color where it had been recently exposed.

Immediate leaks into the buildings would not be expected from the hail-caused fractures in the coating as the foam is closed-cell and would not allow liquid water to pass through. In addition, the underlying built-up membranes may have offered additional protection from leaks. The two roofs without hail-caused fractures in the coating had been struck with hailstone sizes of 0.5 to 1.0 inch in diameter. Although moderate to severe (foam) blistering was found on some roofs, the blistering did not appear to have a material affect on the amount of hail-caused fracturing of the surface coating.

A.4. METAL

Six low sloped metal roofs were inspected, involving painted or alloy-plated metal panels. Maximum hailstone sizes impacting the roofs ranged from 1.0 to 2.5 inches in diameter. Surface spatter marks were visible where hailstones had removed some of the surface grime or oxidation. Dents occurred from hail impact on the roofs that had been struck with 1.5 inch or larger diameter hail. On these roofs, the hail-caused dents were found to be a cosmetic issue, with no functional damage to the paint or the metal plating. On exposed fastener systems, there were no instances found of fasteners loosened by hailstone impact.

Four steep slope metal roofs were inspected: three metal shingle panels and one standing seam copper roof. Maximum hailstone sizes impacting the roofs ranged from 0.75 to 1.75 inches in diameter. Surface spatter marks were visible where hailstones had removed some of the surface patina of the metal or surface grime and oxidation.
RICOWI Seminars

- Spring: with RCI
- Fall: tours of facilities
  - Oak Ridge National Laboratories
  - Colorado State wind tunnel
  - U of Florida wind labs
  - NRC uplift and wind labs
  - National Weather Center (Oklahoma)
Best Practices Guides

• Initiated by IBHS (Insurance Institute for Building and Home Safety)

• Each participating member to prepare a guide to assist insurance (and other) investigators in the evaluation of roofing systems
Best Practices Guides (2)

- Draws upon existing documentation and resources
- Summarizes damage assessment and potential corrective action
Best Practices Guides (3)

• Examples:
  – Wind storm has dented and dingled an SPF roof from wind-borne debris
  – What to do?
    • Tear off roof and replace with single-ply?
    • Recoat?
    • Patch with caulking?
    • Patch with SPF?
Best Practices Guides (4)

- Examples (cont.):
  - Fire inside of a warehouse has damaged the roof.
  - What to do?
    - Core roof to determine extent of damage?
    - Replace total roof?
    - Replace part of roof?
    - Don’t do anything?
SPF Best Practices Guide

• About 70 % complete
• Overseen by SPFA Roofing Committee
• Generally summarizes existing documentation and technology
• References provide additional info
Final Guides

• PDF docs to be posted to Web by IBHS
• Will need to be regularly reviewed and updated by SPFA Roofing Committee
Do You Want to Help?

• Join the SPFA Roofing Committee
• Advise Rick Duncan or Bruce Schenke of your interest.
QUESTIONS?