



RCA and the Roof Insulation Committee of the Thermal Insulation Manufacturers Association (RIC/TIMA) have been working together for some time to solve problems and answer questions concerning the use of polyurethane and polyisocyanurate insulation in roof assemblies. The 1985 NRCA Convention program "Insulation: R's, U's, Do's and Don'ts," conducted by RIC/TIMA, was just one result of this close association.

Another long-term, ongoing project being conducted jointly by NRCA and RIC/TIMA is the monitoring of test roofs placed in the yard of the Fidelity Roof Co. in Oakland, Calif. These observations have been conducted in cooperation with the Western States Roofing Contractors Association (WSRCA). Representatives of all three groups have been following the performance of the test roofs since they were installed in December 1979. The most recent examination of the installations has confirmed earlier findings that installing a hot BUR system directly over urethane insulation can lead to blistering problems.

Test results from this project have been reported periodically over the years. The first report was released in February 1980 at an NRCA Convention session titled "Blistering Over Urethane." According to these preliminary findings, hot asphalt applied directly to a urethane insulation board can foam and create many small blisters on the surface of the bitumen.

Another inspection of the Oakland test roofs was conducted in the summer of 1982. This time, representatives of NRCA,

WSRCA and RIC/TIMA were joined by Dr. Jerome F. Thomas, professor of civil engineering at the University of California. The findings of this examination were reported in a March 1983 *Roofing Spec* article authored by Thomas, titled "Interphase Blistering." In this article, Thomas noted that after two years in place, the BUR test roofs insulated with urethane showed the greatest tendency to form blisters between the plies. The test roof with the smallest percentage of area covered by blisters was the installation containing no urethane, according to Thomas.

The most recent inspection of the test site was conducted on June 26 of this year. Once again Thomas and representatives of NRCA, RIC/TIMA and WSRCA were on hand to observe the progress of the blisters and evaluate the performance of the test roofs. During this examination it was found that installations were continuing to blister.

The researchers also noted that although the number of blisters had declined, they were now covering a greater percentage of the roof area. Apparently, the smaller blisters were joining together to form larger blistered areas.

Groups' suggestions confirmed

The continued blistering of these test roofs confirms NRCA's and RIC/TIMA's observations and recommendations concerning roofing over urethane. These recommendations were published in July 1981 as *Bulletin #9, NRCA-RIC/TIMA Joint Statement on Blistering*. The booklet contained two suggested procedures:

- Over the top surface of polyurethane insulation, a thin layer of wood fiber board insulation, perlite board insulation, or glass fiber board should be installed, staggering the joints from the layer below. The built-up roofing membrane should then be applied as specified by the designer.
- Over the top surface of polyurethane insulation, a venting-type base ply should be installed in such a way as to allow for venting. The balance of the built-up roofing membrane should then be applied as specified by the designer.

NRCA, RIC/TIMA and WSRCA believe that by following one of these recommendations when installing a BUR roof over urethane, contractors will be able to avoid most of the blistering problems observed in the Oakland test roofs.

