The Relationship Between Test Data and In-Field Performance

By Thomas Tisthammer

The laboratory testing of materials used in the roofing industry has provided cubic yards of data over the last 20 years. Specifiers, however, must ask, on behalf of their clientele, the following question: "Is this data an accurate prediction of roofing system field performance?" Because of the wide variety of accepted tests and test conditions, comparison of test results is nearly impossible. Minor differences in test procedures often produce widely varied results. This creates confusion when even professionals seek to compare test data. The result of this confusion in the roofing industry is generally a default to a few meaningless tests that all products pass with little difficulty. Raw material suppliers, roofing materials manufacturers, consultants, architects, engineers, contractors, code bodies, and even the testing agencies themselves are caught in this dilemma. The answer to our question, then, is, at best, "We don't know."

The relationship between laboratory materials testing and in-field roofing systems performance remains unsubstantiated.

To avoid this problem, the successful roofing consultant relies on his stock-in-trade, field experience. Conservative consultants whose interests run parallel to those of their clients' tend to suggest solutions they themselves have proven to be successful. In other words, the consultant and his client share, and thereby reduce, their risk.

In the spirit of this conservative example, the Del E. Webb School of Construction at Arizona State University in Tempe, AZ, has engaged in research on the in-field performance of roofing systems. It was observed that, as an "independent third party," ASU's research effort could more easily avoid conflicts of interest arising from the discovery of poor performance if conducted in an environment of "academic freedom."

Under the direction of Dr. Dean Kashiwagi, the Performance-Based Studies and Research Group (PBSRG) began to search for evidence of a relationship between test data and in-field, "real world" performance. Data has been collected on thousands of roof installations across the country and Europe. Specific data on age, date of installation, size, ponding, traffic, climate, customer satisfaction, etc., have been collected on BUR, modified bitumen, single-ply, and SPUF roofing systems. This information has been assembled into a huge database and is available to subscribers over the Internet (www.eas.asu.edu/pbsrg) and in hard copy publications through the PBSRG (1-602-965-4273).

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Originally containing only information on roofing systems performance, the database has grown to include information on manufacturers, contractors, and roofing consultants. Participation in the program is voluntary and performance information of participants is updated continuously. To date, PBSRG research has been able to establish beyond doubt that contractor performance is the primary factor determining successful system performance. The relationship between laboratory materials testing and in-field roofing system performance remains unsubstantiated.

About The Author

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