

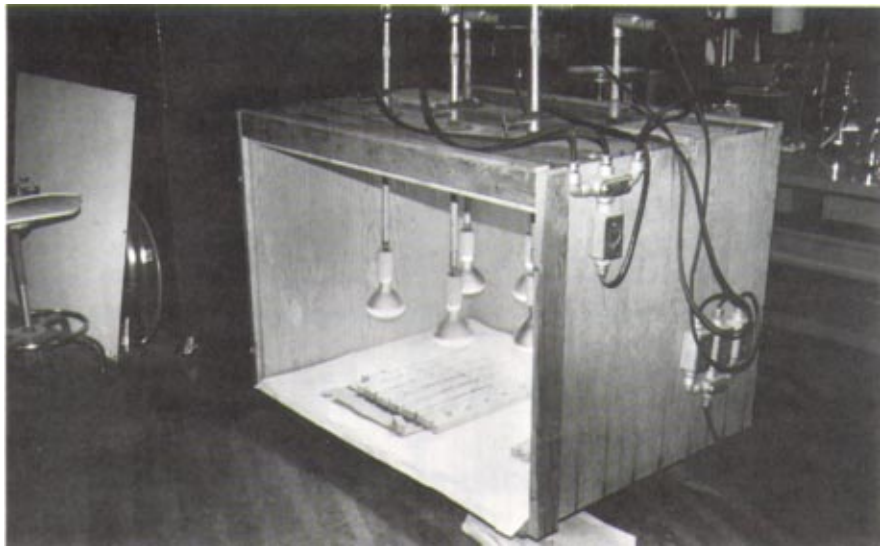
LONG-TERM DURABILITY STUDY VERIFIES

Silicone Sealants are More Stable Than Urethane Sealants

Long-term exposure to ultraviolet (UV) light, temperature and humidity can cause some urethane perimeter sealants to fail, unlike silicone sealants which see little change in the same situations, concludes a report recently presented to the American Society for Testing and Materials (ASTM).

The technical paper, "Accelerated Weathering and Heat Stability of Various Perimeter Sealants," sheds new light on the long-term durability and longevity of high performance perimeter sealants used in construction. The paper was co-authored by Todd J. Bridgewater and Lawrence D. Carbary, technical service and development specialists for Dow Corning Corporation (Midland, MT).

"While the silicone and urethane sealants we tested are often specified as equals in terms of performance, this data indicates that urethane materials do not generally have the weather resistance or the durability of silicones," said



Various one-part silicone and two-part urethane perimeter sealants were exposed to ultraviolet light, high temperatures and humidity using accelerated weathering lab equipment. The urethane sealants experienced a varying degree of weather degradation, while the silicone sealants performed effectively independent of weather conditions.

Bridgewater. "The study shows that exposure to UV light and temperatures of 122°F causes some urethanes to lose their elastomeric properties."

"Of the urethanes tested, we saw a wide variety of performance levels," explained Bridgewater. "Some urethanes degraded faster than others, and some became too soft to be

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useful, while one became hard.”

The paper details test results on the long-term effects of ultra-violet light, temperature and humidity on seven widely use perimeter sealants. According to the paper's conclusion, the urethane sealants tested experienced various forms of weathering degradation. The degree may

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vary depending on their position on a building relative to the sun. The silicones demonstrated the ability to perform effectively independent of their position relative to the

sun and showed little variance after final cure.

“There has been a tendency to blame poor workmanship, adjacent materials or damp working conditions for the failure of urethane sealants,” explained Carbary. “This may be true in some instances, but our work shows that the urethane sealants we studied failed prima-

rily due to UV light exposure.”

“Our tests have been supported by field examinations where some urethane sealants have failed after six years or less, while silicone sealants applied twenty years ago are still performing with minimal change in elastomeric properties,” said Bridgewater. □