

C CONCRETE SURFACES

Treatments for Protecting, Enhancing & Maintaining

hanley wood

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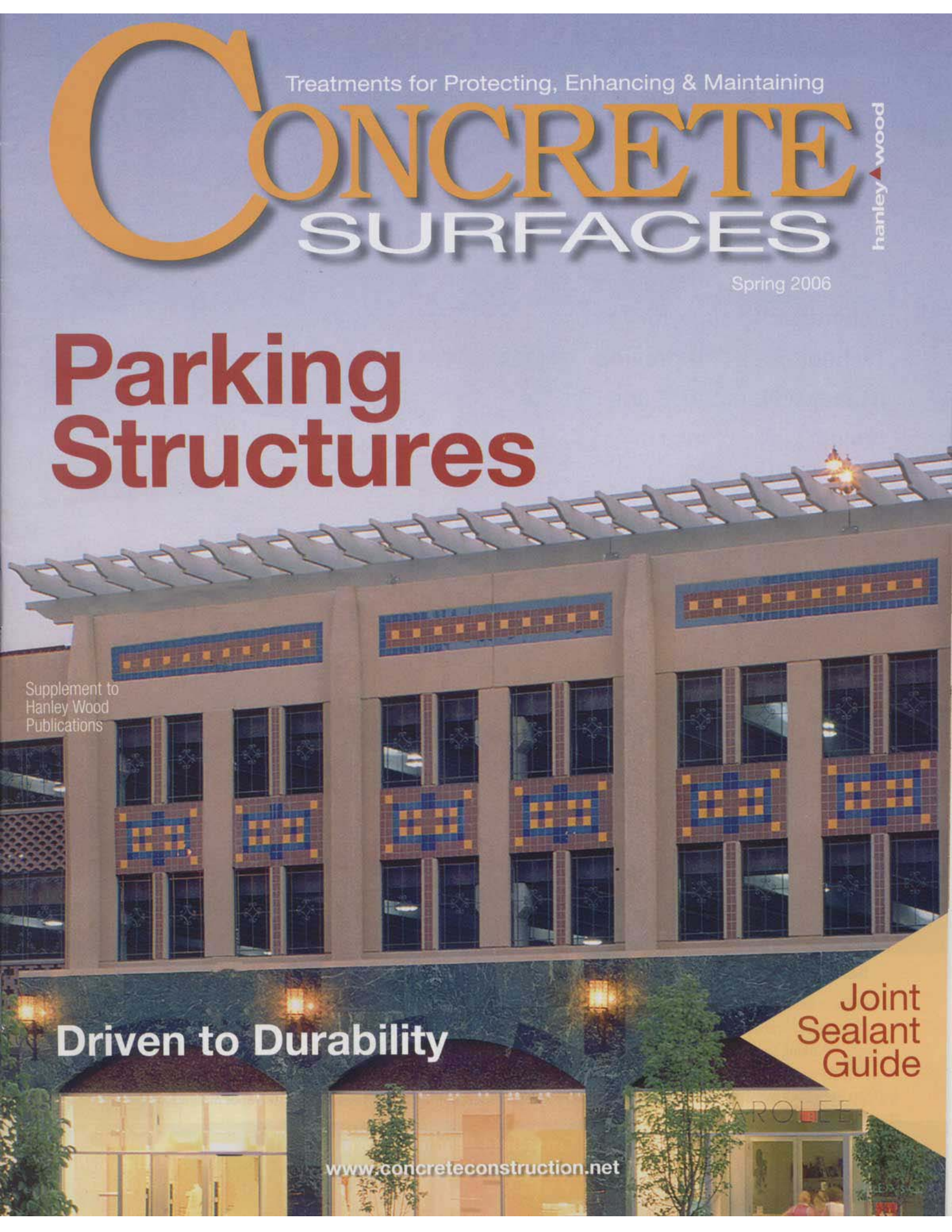
Parking Structures

Supplement to
Hanley Wood
Publications

Driven to Durability

**Joint
Sealant
Guide**

www.concreteconstruction.net



...concrete sealers remain a popular alternative.

capable of not only reducing the threat of condensation on the surface (liquid moisture), but reduces the overall vapor pressure in the space. Moisture travels from areas of high vapor pressure (within the slab) to the areas of lower vapor pressure being mechanically created (ambient condition). The moisture vapor is desorbed from the concrete into the air and pushed out of the space by air movement.

Dehumidification or sealer

Although the use of dehumidifiers for drying concrete slabs is growing quickly, concrete sealers remain a popular alternative. Choosing between using a

sealer and a dehumidification system to prepare the slab for installing floor coverings is based on factors including budget, deadlines, severity of the problem, and warranties. If one expects to install flooring in a few days, the use of a sealer would be a wiser choice; the dehumidification process cannot be completed in a matter of a few days.

This information was provided by Russ Brown and Howard Kanare. Brown is national accounts manager with Munters Moisture Control Services, 800-422-6379 or rbrown@munters.com.

Kanare is senior principal scientist with Construction Technology Laboratories (CTL), 847-522-2285 or hkanare@ctlgroup.com.

Joint sealing solutions

Deck expansion joint sealing is critical to parking structure performance and longevity. Even more critical than watertightness of joints is parking deck design that incorporates a structural slab waterproofing membrane under a wear-course or topping slab. Until the emergence of a watertight, purpose-designed system about 20 years ago, designers were left with the ineffective option of a buried looped membrane “band-aid” approach to address these critical joints.

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For years, attempts have been made to seal expansion joints in asphalt-topped parking decks without tying the joint into the waterproofing on the structural slab. Over time failure usually occurs at the transition between the joint and membrane. Buried-membrane options offered today are merely a throwback to band-aid solutions (buried-EPDM-membrane type products). But effective, watertight joint systems do exist. Specifically engineered to address the shortcomings of buried, sheet-membrane joint treatments that pre-date it by decades, these systems are all descendants of a product called Migutan by Emseal.

Not a “buried band-aid”

Split-slab parking or plaza deck waterproofing involves a waterproofing membrane applied to a structural deck covered with a porous topping. When expansion joints are necessary, they must be waterproofed using a method and material that accommodates movement while reducing or eliminating the stresses that will cause a buried membrane to fail.

The joint system must also have a static integration with the deck waterproofing membrane. Migutan provides a heavy-duty gland to accommodate movement at the joint that is integrated with the deck waterproofing tie-in but that is accessible for repair, if necessary, without disrupting the topping system.

In the “buried band-aid” approach, a strip of reinforced membrane is placed over joints and adhered to the parking deck or to the waterproofing deck membrane. The problem with this is that the accumulation of water combined with freeze/thaw cycles, flex fatigue from



Migutan system components—retainer legs installed onto structural slab, side flashing sheets, and movement gland—before installation of stainless steel retaining caps and before integration into the deck waterproofing membrane.

movement, and abrasion between topping and buried components results in the inevitable rupture of the buried “band-aid.” Repair then involves removing the entire surrounding topping system and all adjacent landscaping to expose the membrane, usually rendering the space below unusable for the duration of the repair or replacement.

The system is a combination of corrosion-free aluminum and stainless steel mounting rail components mechanically secured to the structural slab to provide a positive anchoring of the waterproofing components. The metal mounting components ensure that tension, compression, torsion, and other forces that result from joint movement are isolated from the critical connection of the deck waterproofing membrane to the side flashing sheets of the joint system. Its waterproofing components are all state-of-the-art thermoplastic, rubber materials. They can be heat-welded in

the factory to address changes in plane and direction or also welded in the field with simple hot-iron tools.

Emseal’s Migutan has an unrivaled track record in over 20 years of waterproofing plaza and split-slab deck, parking decks, stadium concourse, garden roof, and roadway expansion joints. The reputation for properly engineering these systems for watertightness, combined with the workmanship of trained contractors, and backed by manufacturer and installer commitment to addressing problems should they arise, are the cornerstones of the product’s success.


The largest installation of this system on a single project is Atlantic Station in Atlanta. “The Migutan System was the perfect heavy-duty solution for this monster elevated parking deck/retail/condo project,” says Naren Patel, division manager of Alpha Insulation & Waterproofing Company, Marietta, Ga. “The outcome was extremely

“The outcome was extremely successful. The joint still looks brand new.”

successful. The joint still looks brand new. All of the transitions from road to sidewalk are holding up very well. The system has given the owner a uniform watertight parking deck that is capable of withstanding expansion/contraction movement from weather and also heavy traffic for years to come. The technical support provided by Emseal was terrific. This was an ideal model for similar projects across the country.”

Band-aid joint treatments were historically the only choice available to designers and therefore were widely specified in years past. The existence of a market for better approaches is the direct consequence of owners having to spend a fortune replacing failed joints.

John Ruskin, a nineteenth-century commentator on architecture among other things warned: “It is unwise to pay too much, but it’s worse to pay too little. When you pay too much you lose a little money—that is all. When you pay too little you sometimes lose everything, because the thing you bought was incapable of doing the things it was bought to do.”



Before (top above), during (middle above), and after (bottom above) the installation of the joint sealing system components.