

PARKING



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**University of Akron's
Worry-Free Maintenance Program**

University of Akron Takes Parking Decks to the Next Level of Worry-Free Maintenance and Performance

The days of applying antiquated solutions to the problem of leaking parking deck expansion joints may be ending. Rather than relying on decades-old strategies devised to manage water that has already penetrated faulty joints (such as gutters), facilities managers, engineers, and other building professionals are realizing there are solutions for problems that were once simply accepted as being unsolvable.

"Facilities managers and engineers are learning that a systematic approach to joint treatment, and the use of alternative joint systems, can solve conditions once considered to be perpetual 'leakers,'" said Lester Hensley, vice president, Enseal Joint Systems, Ltd., a provider of a wide range of custom-made joint systems.

One example is Bernie Evans, facilities manager at the University of Akron. Responsible for the safety of numerous structures, including six parking decks, Evans seeks long-term and dependable construction and maintenance solutions. So for the past 10 years, Evans has specified expansion joint systems incorporating Santoprene® thermoplastic rubber for the university's parking decks, and has never experienced a joint failure.

Santoprene rubber, a thermoplastic elastomer, is



A polyurethane-based traffic-bearing deck coating applied across the entire top level of the University of Akron's refurbished parking garage adds watertight and non-skid properties to the concrete. Compatible with the nosing material that adhered the Santoprene rubber expansion joints to the concrete, the deck coating ensured continuity between the seal and the deck expansion joint system.

becoming increasingly popular for use in expansion joint systems for parking decks. This is due to the systems' superior performance over competing systems made from neoprene, EPDM, and other materials.

"We have an unblemished track record at the university of using Santoprene rubber for expansion joint systems. We have had no system failures in 10 years," said Evans. "The key for us is the material's weatherability and overall durability. It's reliable and it eliminates any maintenance worries whatsoever—saving us money and headaches down the road."

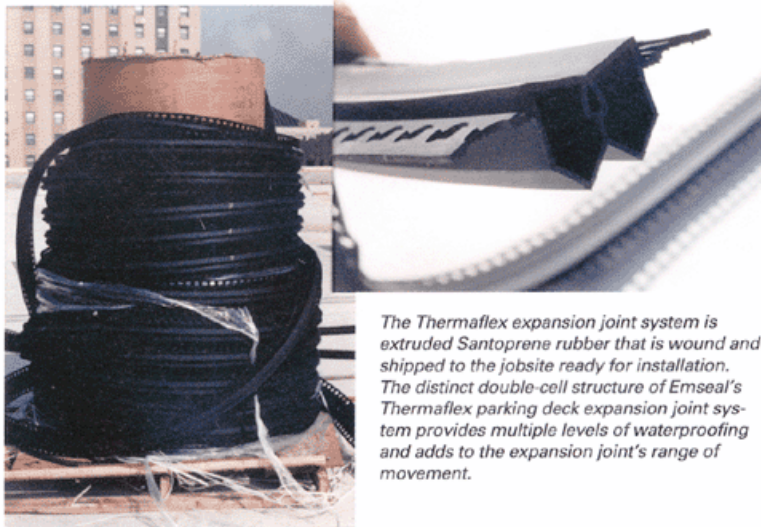
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The Complexity of Parking Deck Maintenance

All buildings require regular maintenance, but parking decks are unique because they experience particularly harsh exposure to severe conditions. Extreme temperatures, water, snow, and ice are just some of the punishing factors. Take into account chemical corrosives such as chlorides and oil, and the continual weight and wear of moving vehicles, and the parking structure becomes a complex maintenance puzzle.

Expansion joints are gaps in the structure sealed with flexible strips to accommodate the movement of a parking structure. Joints are necessary due to the expansion, contraction, and up-and-down movement of the concrete slabs caused by extreme temperatures and vehicular traffic.

To prolong the life of a parking deck, it is essential that any expansion joint system is watertight—protecting the structure from corrosion caused by leaking water, chemicals, and other factors. Therefore, finding an ideal material for expansion joints that provides a superior level of resistance against weather, abrasion, chemicals, and flex fatigue



The Thermaflex expansion joint system is extruded Santoprene rubber that is wound and shipped to the jobsite ready for installation. The distinct double-cell structure of Emseal's Thermaflex parking deck expansion joint system provides multiple levels of waterproofing and adds to the expansion joint's range of movement.

is essential. In these categories, Santoprene rubber achieves better ratings when compared with other expansion joint system materials used today.

"Flex fatigue is a critical property in expansion joint systems," said Meg Noethen, construction industry manager, AES. "Santoprene rubber, when tested according to ASTM guidelines, experienced no failures after two million cycles of flexing, surpassing all competitive materials."

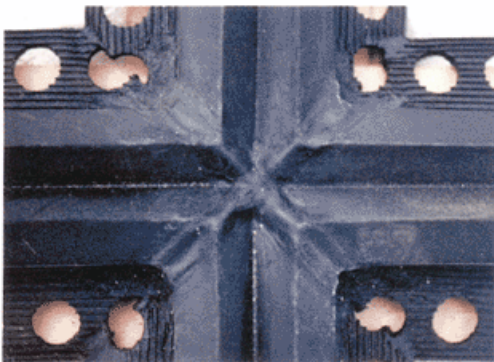
Constructing a New Look to Face the Elements

In late 1998, the university completed a state-of-the-art retrofit of the top level of a main parking structure using expansion joints made with Santoprene rubber, making the upper deck well-equipped to withstand decades of abuse from harsh weather, chemicals, and other damaging factors.

By installing expansion joints made from Santoprene rubber, the university expects to save thousands of dollars in future repair costs, due to the joints' durable properties.

The university was supplied with 1,163 feet of extruded expansion joint by Emseal, a company that has worked with Santoprene rubber for more than a decade in the design and delivery of joint systems. Evans specified Emseal's Thermaflex® parking deck expansion joint system for the deck renovation. The system's distinct double-cell structure provides multiple levels of waterproofing and adds to the expansion joint's range of movement. Ribbed flanges, or "wings," on each side provide anchoring strength as well as additional labyrinth sealing.

Once at the site, the expansion joint is rolled out and ready to install. A key feature of the system is that it is



Thermaflex parking deck expansion joint transition points, such as crosses (as shown), tees, and odd angles, are heat-welded at the factory and shipped directly to the job site for installation. Prefabricating these critical parts to meet architectural specifications using detailed blueprints eliminates many variables that might lead to improper installation.

heat-weldable—a convenient process for fast, economical, and accurate installation, especially at corners.

The Thermaflex system was prefabricated by heat-welding transition points (crosses, tees, and odd angles) to meet architectural specifications and was shipped directly to the job site for installation.

"Pre-molded angles are a major selling point to me; I believe that they shouldn't be done by trial on the job site," Evans said.

"Prefabricating these critical parts using detailed blueprints eliminates many variables that might lead to improper installation, saving me time and stress."

"Heat welding is a major advantage of expansion joint systems that use Santoprene rubber. It provides installation versatility and practicality, something not available with any other systems today," said Hensley. "It also permits continuous lengths and sealing integrity through transitions and terminations, which are critical areas at which to ensure watertightness."

Heat welding also eliminates emissions from volatile organic compounds that may affect the environment,



A glass-filled polyurethane nosing is poured into the joint gap to encapsulate the expansion joint flanges, or "wings." The wings on each side of the Thermaflex expansion joints provide anchoring strength as well as additional labyrinth sealing.

which are prevalent in solvent-bonded thermost rubber joints.

During the retrofit, after proper preparation of the blockouts (a shelf on each side of the joint gap), the heat-welded joints were manually pressed into the joint gap. The expansion joint flanges were encapsulated with a glass-filled polyurethane nosing mixed on-site, poured, and quick to set. After trowling smooth and following simple post-installation procedures, the system was complete.

As an added component, the university applied a PU-based traffic-bearing deck coating across the entire top level to add watertight and non-skid properties to the concrete. Compatible with the nosing material, the deck coating ensures continuity between the seal and the deck system.

Eventually, Evans says, expansion joints for the entire parking garage, as well as all other parking facilities on the campus when the need arises, will be converted to Santoprene rubber.

Currently, each of the university's six parking decks uses expansion joints made with Santoprene rubber for at least one level.

"We want the ultimate in dependability and uniformity. That's what we're achieving by using expansion joints made with Santoprene rubber throughout our parking facilities," Evans said.

Even after 10 years of field successes all across the country, Hensley feels the opportunities for these systems is virtually untapped. "Santoprene rubber is a problem-solver for expansion joints, and is opening doors to many new opportunities and design flexibility."

"We've based our business on Santoprene rubber because our experience tells us it's the best performing material for expansion joint systems," he continued. "It simply exhibits the ideal performance properties needed for this critical application, and is practical and economical to produce and install." P



A polyurethane nosing that is quick-to-set is manually worked under, over, and around the flanges, or "wings" of the Thermaflex expansion joint system to secure it to the concrete.

For more information on this article or Emseal Joint Systems, contact Lester Hensley at 508/836-0280, or AES headquarters at 800/305-8070 or on the Web at www.aestpe.com.