

TerraThane™



Soil Beneath Historic Landmark, The American Royal, Erodes and Concrete Slab Floor Becomes Uneven

Saves "Millions" with TerraThane™ Geotechnical Polyurethane System

PROBLEM

> The floor of Governor's Exposition Hall began shifting back in 1980s and the only remedy was to fill the voids beneath it with asphalt, and eventually to apply asphalt over the slab for a level surface. Finally last year the American Royal management was faced with a tough choice—find a solution or tear up the entire floor and replace it.



Kansas City, Missouri's historic American Royal got its start way back in 1899 and today draws more than 250,000 people over an annual eight-week season of barbecue contests, rodeos, livestock shows, equestrian events and agricultural activities benefiting youth and education. The 14-acre complex's buildings, though, have a problem common to the confluence of the Missouri and Kansas rivers—the soil beneath them erodes and concrete slab floors become uneven.

The land on which American Royal stands is an ancient riverbed, or channel for retreating glacial melt and contains thick limestone, channel sandstone, and shale. While the mix is a solid, stable base, sometimes the supporting geology shifts and presents challenges for concrete sidewalks and slab floors.

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SOLUTION

> TerraThane™ Geotechnical Polyurethane System 24-003. A 4.0 lbs per ft³ density, plural component, polyurethane foam for concrete lifting. When higher compressive strength and tensile strength are required, this system is ideally suited for the application.



They chose NCFI Polyurethane's TerraThane™ Geotechnical Polyurethane Systems.

Joe Morgan of Pro Foundations got to work "foamjacking"—a relatively new term based on the legacy method of "mudjacking" in which a slurry, or grout, of water, dirt and cement is pumped under a concrete slab to lift it to its original level position. Foamjacking uses TerraThane™ foam instead of the mud slurry. TerraThane™ foam is lighter than mud so it doesn't overburden the soil, yet more structurally dense so it handles heavier loads.

RESULTS

> Dean Barrett, deputy director at Kansas City's Department of Convention and Entertainment Centers, says the city is pleased with the successful results of the December 2011 work. "We've got a level floor and it saved us millions of dollars. We'll be using it again for other projects here at American Royal."



"SPF is an ideal product for void filling and concrete lifting," says Morgan. "We use the specially formulated, dense foam system made by one of the U.S.'s oldest and most trusted foam houses, NCFI Polyurethanes. We removed the asphalt and drilled small holes in the slabs, pumped the two-part TerraThane™ foam into the holes to fill the voids—some larger than 36"—then raised the slabs to level."

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Learn more at www.TerraThane.com
or by calling 1-866-NSULATE (1-866-678-5283)

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AMERICANROYAL.COM

TerraThane™ 24 series, Geotechnical Polyurethane Systems are two-component, closed cell, rigid polyurethane foam designed for concrete raising/lifting/leveling, void fill and cavity fill applications. These are specially designed for bridge approaches and departures, highway and street sections, airport runways and taxiways and residential and commercial concrete slabs.

- Available in hydrophobic or hydro-insensitive formulations
- Injectable through 5/8" hole making the process less intrusive
- Flows well before lifting or filling to ensure complete void fill and support.
- Conforms to all irregular shapes.
- Controlled expansion rate to minimize over lifting.
- Fast cure enabling concrete section(s) to be put back into service quickly.
- Light-weight, minimizing pressure on potentially shifting substrate.
- Mixing of two components done by machine for speed and accuracy.
- No minimum batch size and no pre-mixing required, resulting in little to no waste.
- Only one mix design required for entire job; no re-mixing required.

TYPICAL PHYSICAL PROPERTY RANGES OF TERRATHANE™ 24 SERIES SYSTEMS

Densities: 2.0 lb/ft³ upwards to 6.0 lb/ft³

Compression Strengths: 32 psi upwards to 120 psi (free rise, ASTM D1621)

TerraThane™ systems reach 90% of compression strength within approximately 15 minutes of application.

TerraThane™ polyurethane foams are tested to ASTM test methods including but not limited to, D 1622, D 1623, D 2127, C518, D 2842, Closed Cell Content NCFI TM300 and D 2126.

TerraThane™ polyurethane systems have excellent resistance to solvents.

Maximum service temperatures range from 180° F (82.2° C) to 200° F (93.3° C).

The above values are average values obtained from laboratory experiments and should serve only as a guide. Consult NCFI for detailed technical data sheets and MSDS sheets for further details.

NCFI
POLYURETHANES
A whole new comfort level, for you and for the world.