

CASE STUDY

NCFI's TerraThane™ Helps Improve Houston's Busy Highways



PROBLEM

Erosion beneath the highways causes the concrete highway slabs to drop, roadway depressions, uneven bridge approaches, and uneven joints that make driving bumpy and uncomfortable, dangerous, and causes severe wear and tear on automobiles.

Highways around Houston, TX are known for their traffic, only lagging behind other metropolises like Los Angeles, D.C., and Atlanta. This means the roadways need constant repair, but they also can't be closed while the work is done. Extensive repairs were needed on one of the city's busiest corridors in the NE quadrant where I-10, 610 Loop, I-59, and I-69 feed millions of cars daily to, from, and around Harris County. In the past, one of the only options available was mudjacking, which uses a mix of mud, sand, cement, crushed limestone, and water hydraulically pumped into large holes drilled into the concrete slabs to fill voids and level the slabs. It uses more and much larger equipment, and requires larger holes to be drilled. It also typically requires the roadway to be closed for a long period of time and clean up time is considerable.

SOLUTION

The Texas Department of Transportation contacted Nortex to complete the repairs for the half million pound project using a relatively new technology called "foamjacking."

Foamjacking uses high-density polyurethane foam to fill the subterranean voids, and lift the concrete slabs to proper level. "We've been lifting

"TXDOT have asked for a better solution or product to do the highly specialized job."

and stabilizing roadways with polyurethane foam since we got into the business back in 2003," says Casey Derosa, Assistant General Manager of Nortex. "It's a far superior method versus the old way of mudjacking." According to Derosa, Nortex started in January working to complete the 150 plus location project. They went about standard operations by drilling 5/8-inch holes in the concrete slabs and pumping TerraThane™ polyurethane foam made by the US company, NCFI Polyurethanes, into the voids, filling then lifting the slabs to the proper level. On some locations the slabs were lifted as much as eight inches to ensure the highway was level and a smooth driving surface.

RESULTS

Derosa says he used TerraThane because they've worked with NCFI Polyurethanes' Geotechnical Division on formulations since 2003. "We love the specialized TerraThane material. It's a four-pound foam system with very high compression strength, ideal cell structure, and low tolerance for water absorption. Day in and day out, it's consistently the best product on the market." He also added that, "State DOTs are looking for products that meet or exceed expectations and this product certainly does that. We never worry when we use TerraThane™. We trust the consistency and quality of each set we buy and use. NCFI has proven to be a great partner in this growing business."

Learn more at
www.TerraThane.com

or call

1-866-NSULATE
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TECHNICAL SPECIFICATIONS

TERRATHANE™ 24 SERIES SYSTEM

DESCRIPTION

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. Polyurethane foam has been used in these applications for over 40 years, and NCFI Polyurethane has manufactured these foams for over 20 years.

- Available in hydrophobic or hydro-insensitive formulations.
- Injectable through 5/8" hole making the process less intrusive.
- Flows well to ensure complete void fill and support before raising and lifting.
- 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.
- Lightweight, 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 FOR TERRATHANE™ 24 SERIES SYSTEMS

Densities: 2.0lb/ft³ upwards to 6.0lb/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, D1622, D1623, D2127, C518, D2842, Closed-cell content NCFI TM-300 and D2126. 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.

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI Polyurethanes warrants only that the material shall meet its specifications; this warranty is in lieu of all other written or unwritten, expressed or implied warranties and NCFI Polyurethanes expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere strictly to any recommended procedures shall relieve NCFI Polyurethanes of all liability with respect to the material or the use thereof.



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