

CASE STUDY

Concrete Highway Slab Lifting Case Study: Fargo, ND



PROBLEM

Erosion under concrete slab highway and bridge approaches causes uneven, dangerous driving conditions.

Interstates 29 and 94 near Fargo, North Dakota, were in need of repair. The concrete slab highways were experiencing a common problem with this type of roadway—erosion underneath the slabs that left the highway lower in some spots causing uncomfortable, unsightly, and potentially dangerous driving conditions. Some of the erosion was on bridge approaches causing the concrete slabs to drop anywhere from two to four inches.

Learn more at
www.TerraThane.com

or call

1-866-NSULATE
(1-866-678-5283)

SOLUTION

The North Dakota DOT selected Mudpumpers Mudjacking Inc., Dilworth, MN, to repair the highway and they chose TerraThane™ polyurethane foam system to get the job done. Gary Molstre, president of Mudpumpers Mudjacking, says, "This Red River Valley soil likes to move. We're seeing more demand not just for foamjacking highways and bridge approaches, but also for lifting floors in commercial buildings and other applications."

TerraThane™ foamjacking has definite advantages over legacy process of mudjacking: it's cleaner and lighter so there isn't as much weight as legacy products on the soil or bridge beneath, and the contractor can drill smaller holes in the concrete to apply it. This specially formulated polyurethane foam utilizes a hole that is only five-eighths inch or smaller compared to mudjacking holes that run between one inch and two inches. This not only speeds up the time of repair, but also saves money.

RESULTS

The use of TerraThane™ foam instead of legacy "mud" allowed the contractor to drill smaller holes, speed up the job and save money.

Molstre explains, "We foamjacked 22 approach panels with over 120,000lbs.

"Foamjacking with TerraThane™ is transforming our company."

of TerraThane™, and then tapered and smoothed the ride by lifting anywhere from 40-80 feet of the road to meet each newly lifted bridge deck." He adds, "The North Dakota DOT was very happy with the job. Foamjacking is the new, better model for efficient highway and bridge repair and TerraThane™ does a great job. NCFI's technical support staff has gone above and beyond by helping us set up the polyurethane rig and fine-tune the process. It was the first time a manufacturer sent tech reps to our job site, which we really appreciated. They really care about our business. In fact, foamjacking with TerraThane™ is transforming our company. We won't change to another product."



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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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