



CASE STUDY
DEEP SOIL
STABILIZATION

Deep Soil Stabilization at Shopping Center

City Creek Center is an up-scale shopping mall in downtown Salt Lake City. While under construction a five-foot-wide trench, located between two underground parking garages, was back-filled with pea gravel, and then a sidewalk was built on top of it. About ten years later the gravel began to settle enough to cause underground power lines to stretch and finally tear, knocking the power out for many of the local businesses. Engineers determined that the trench could be stabilized with the installation of polyurethane grout at depths of 30 feet below the surface. A local geotechnical services contractor was called in to perform the work.

Powerful Polymers

AP Fill 700 is a single component, water-activated, hydrophobic, low viscosity, closed-cell polyurethane injection resin. This polyurethane material was selected because it is ideal for both permeating soil and filling voids. It also provides excellent strength and stability.



Physical Properties - Cured

AP FILL 700		
Tensile Strength	(ASTM D-1623)	45 psi (3,102 mb)
Tensile Elongation	(ASTM D-1623)	2.9%
Shrinkage	(ASTM D-1042/D-756)	Negligible
Compressive Strength (with fine sand)	(ASTM C-39)	2,050 psi (141,343 mb)
Pre-activated mix viscosity	110 -130 cP	

Properties will vary depending on application conditions.

Painless Procedure

An Alchemy-Spetec technical consultant worked closely with the geotech contractor to develop the injection plan, detailing exactly where each of the injection points would be located. The plan was then communicated to the engineer and approval was given to move forward with the project. The geotech crew installed 10 injection tubes 30 feet deep into the soil. They then pumped approximately 1 gallon per vertical foot of AP Fill 700, as they pulled the tubes up 1 foot at a time. The injection points were spaced about 36" apart.

Rapid Result

After only two days the site work was completed, and the general contractor was able to move forward with filling the trench and repairing the sidewalk.

About Alchatek

Alchatek is an international leader in the manufacture and supply of chemical grouts and construction products for Geotechnical, Leak Seal, and Seawall Repair applications. Providing solutions from its headquarters in Tucker, Georgia and its manufacturing facility in Reno, Nevada, Alchatek specializes in advanced construction technologies for sealing leaks, stabilizing soils, lifting concrete, and protecting infrastructure and seawall structures. To best serve its customers, Alchatek is organized onto three divisions:

The Leak Seal Division combines a full system offering of polymer chemical grouts and equipment with perhaps the most experienced technical team in the industry. It specializes in preventing water ingress through concrete infrastructure including parking garages, culverts, basements and foundations, and sewer manholes.

The Geotechnical Division offers a complete line of single component products for soil stabilization as well as two component polyurethane foams for concrete lifting, void filling, and stabilization of infrastructure. This includes lifting sunken structures such as warehouse floors, back into place.

Seawall Repair Network® is the only national network of certified contractors in the repair, preservation, and protection of Seawalls waterfront barriers. Its proprietary methods and materials are environmentally friendly and safe for use in all marine environments and provide a non-destructive solution for seawall repair at 80% less than the cost of replacement.

Tech Support:
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