



Stabilizing a Foundation to Save a Valuable Two Story House

The owners of a valuable one-story house in New Jersey decided to add a second story to the structure. Unbeknownst to them (and to the contractor who worked on the project) four feet of the soil beneath the foundation had been poorly compacted by the home builder. When the second story was added, the soil could not support it and the foundation was critically damaged. The foundation issue caused the structure to shift a bit, which then caused roof damage as well.

When the contractor attempted to replace the roof, rainwater infiltrated the structure, eventually reaching the poorly compacted soil beneath the foundation and creating voids. These voids further destabilized the entire structure. Talk about a problem going from bad to worse! By this point, the residents had been forced out of their home for about a year! The general contractor then contacted a geotech contractor for assistance.

Powerful Polymers

The crew used Alchemy-Spetec's AP Fill 700 high-strength soil stabilization grout to solidify the four feet of poorly compacted soil beneath the foundation. This polyurethane resin was the ideal choice because of its ability to thoroughly permeate the soil and then cure to an incredibly high compressive strength. They used Alchemy-Spetec's PolyShark grout pump to install the material. This pump is specifically designed for large-scale soil stabilization jobs.



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

The crew used a Geoprobe pipe driver to insert grout injection pipes four feet deep into the supporting soil around the house. AP Fill 700 was then injected to stabilize the soil. They also used a carbide drill bit to create small 3/8" drill holes in the concrete foundation slab in a diamond pattern, 4 feet on center. After each drill hole was created, the crew inserted a pipe through the slab and into the ground, pumping the grout to stabilize the soil and fill the voids.

Rapid Result

The geotech contractor completed stabilization of the entire foundation in just two weeks, ending a year-long cycle of compounding problems for the structure. This allowed the general contractor to repair the foundation, finish replacing the roof, and replace the damaged flooring with no further issues. Most importantly, the beleaguered residents were soon able to move back into their house after an exhausting, year-long ordeal.

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.

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